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AN ARSENICAL WITH A BRILLIANT RECORD OF EFFECTIVENESS AND SAFETY
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BLOOD LOSS IN SURGICAL OPERATIONS

CHAIRMAN'S ADDRESS

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AND
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ANN ARBOR, MICH.

The amount of blood lost during surgical operations of various types has been measured and reported by a number of observers. The facts disclosed by these observations have not been generally recognized, nor has their practical importance been sufficiently emphasized. In order to bring attention to this technical problem, the literature on it has been reviewed and further studies have been made as are here reported. Shock appearing during and after operation is still the apprehension of the surgeon and a menace to the patient. During the past three years an enormous amount of investigation on the subject of shock has added materially to our knowledge of it. One fact, however, remains clear: There is no single reliable test or clinical sign of impending shock, especially in anesthetic and postanesthetic states. By the time shock is recognized as such it is well established. Our ability to treat shock has improved, but it is far from satisfactory. The earlier the treatment is instituted the better the results, and if its advent is anticipated it may be prevented far easier than it may be cured. Though there are no positive early tests of impending shock, there is a large background of clinical observation from which to deduce that shock will appear under certain circumstances—burns involving 20 per cent or more of the body surface, severe dehydration, multiple fractures and wounds, crushing injuries, exposure to cold air or immersion in cold water, and extensive blood loss. It is well known that shock develops more readily with a given injury if there exists malnutrition or starvation, anemia, dehydration, physical or mental exhaustion, chronic illness or prolonged bed rest. With these facts available, one should be able to anticipate and usually prevent shock in the surgery in civilian hospitals.

In 1924 Gatch and Little [1] reported the first study of blood loss during some of the more common operations in general surgery in which accurate measurements of the losses were made. They pointed out that the amount of blood lost in the ordinary laparotomy is not great but that in operations involving extensive dissection the loss may be excessive. They concluded that a patient in fairly good physical condition could lose from 600 to 700 cc. of blood without any apparent harmful effect on the postoperative course. Likewise an adult in good health does not manifest any serious effect from hemorrhage until the amount of blood lost is between 800 and 1,000 cc. Alexander Blain [2] in 1929, in commenting on his experience with 3,000 transfusions, stated that the amount of blood lost at operation is often several times greater than that estimated by the surgeon. He urged the preoperative correction of anemia and the immediate replacement of blood lost during operation and condemned delay in giving blood transfusions until after shock had developed. Coller and Maddock [3] in 1932 measured blood loss during some of the ordinary operations and concluded that the amount of blood lost is always greater than the surgeon estimates. Windfeld [4] in 1937 made direct measurements of blood loss during operations and concluded that the loss is often far greater than supposed, so that without appearing dangerous it may reduce the volume of the circulating blood considerably. Determination of hemoglobin concentrations before and after operation did not give quantitative information regarding the amount of blood lost. Pilcher and Sheard [5] in 1937 estimated the blood loss by a photelometric method and found that the average loss from prostatic resections was 479 cc. This finding stimulated efforts to secure better hemostasis, and in a second series studied following alterations in technic the average loss was reduced to 291 cc. A group of 49 general surgical cases was studied for comparison. Hubly [6] in 1937 used this method to determine the hemostatic effect of congo red. White, Whitlaw, Sweet and Hurwitt [7] in 1938 made an exhaustive study of blood loss in neurosurgical operations. They found that in the course of extensive intracranial operations the average loss was from 500 to 1,500 cc. They concluded that these patients rarely develop the typical shock state unless the loss is over 1,200 cc. or unless the loss is rapid. They urged greater attention to hemostasis at the expense of time and advocated discontinuing the operation if the loss exceeded 1,200 to 1,500 cc. Stewart and Rourke [8] in 1938 studied changes in blood and

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From the Department of Surgery, University of Michigan Medical School.
Read before the Section on Surgery, General and Abdominal, at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. Gatch, W. D., and Little, W. D.: Amount of Blood Lost During Some of the More Common Operations, J. A. M. A. **83**: 1075 (Oct. 4) 1924.
2. Blain, A.: Impressions Resulting from 3,000 Transfusions of Unmodified Blood, Ann. Surg. **89**: 189, 1929.
3. Coller, F. A., and Maddock, W. G.: Dehydration Attendant on Surgical Operations, J. A. M. A. **99**: 875 (Sept. 10) 1932.
4. Windfeld, P.: Blutverluste und Blutveränderungen bei Operationen, Acta chir. Scandinav. **79**: 453, 1937.
5. Pilcher, F., and Sheard, C.: Measurements on the Loss of Blood During Transurethral Prostatic Resection and Other Surgical Procedures, Determined by Spectrophotometric and Photelometric Methods, Proc. Staff Meet., Mayo Clin. **12**: 209, 1937.
6. Hubly, J. W.: Hemostatic Effect of Congo Red in Transurethral Resection, Proc. Staff Meet., Mayo Clin. **12**: 213, 1937.
7. White, J. C.; Whitlaw, G. P.; Sweet, W. H., and Hurwitt, E. S.: Blood Loss During Neurosurgical Operations, Ann. Surg. **107**: 287, 1938.
8. Stewart, J. D., and Rourke, G. M.: Changes in Blood and Interstitial Fluid Resulting from Surgical Operations and Ether Anesthesia, J. Clin. Investigation **17**: 413, 1938.

interstitial fluid resulting from surgical operation and ether anesthesia. They pointed out that the hematocrit changes induced by trauma and blood loss of operation are not proportional to the blood loss and that the structurally important elements of blood plasma, that is protein, sodium and chloride, are accurately sustained by the body. They emphasized the fallacy of assuming a quantitative relationship between the changes in the concentration of hemoglobin or plasma protein and changes in the plasma volume.

Nadal [9] in 1939 studied blood loss in orthopedic operations and found that patients losing over 20 per cent of the blood volume frequently showed clinical signs of shock. Leriche and Vasilaros [10] in 1939 reported measurements of blood loss in twenty-nine operations of diverse character. They concluded that a loss even as small as 500 cc. of blood is not a matter of indifference to a body which is called on to effect the repair of trauma and disease. Nesbit and Conger [11] in 1941 measured blood loss associated with transurethral prostatectomy and stated that this determination is easily carried out at the time of operation and should be made a routine procedure, so that untoward blood losses may be immediately appreciated and corrected by transfusion. They urge the use of whole blood to replace the blood loss accurately. Wangensteen [12] in 1942 described a gravimetric method for determining the status of hydration and blood loss during operation. He advocated the replacement of minor blood loss by an amount of plasma 100 to 200 cc. greater than the blood lost, or if the loss is excessive it should be replaced by whole blood. He found the average blood loss from gastric resection to be 300 to 500 cc. In 1942 Buxton and White [13] measured blood loss in 109 patients undergoing operations on and in the thorax. The loss in these operations was exceptionally large, averaging about 700 cc. for each stage thoracoplasty, 1,600 cc. in lobectomy and about the same for pneumonectomy. Large transfusions during operation were advised. Oppenheim, Pack, Abels and Rhoads [14] in 1944 measured the amounts of blood lost in various abdominal operations and described a simplified method for carrying out this technic. The amount of blood lost was not excessive. However, they felt that a transfusion of 500 to 600 cc. of blood during the operation is of great benefit to patients operated on for cancer of the gastrointestinal tract. They advised the routine determination of blood loss especially in elderly patients with cardiovascular insufficiency in order to prevent the administration of unnecessarily large amounts of fluid.

TABLE 1.—*Blood Loss in Operations of Various Kinds in 626 Cases Compiled from the Literature*

Operations	Number of Cases	Blood Loss		
		Maximum, Cc.	Minimum, Cc.	Average, Cc.
Brain operations (7)	30	2,150	487	1,084
Postganglionic neurotomy Cr. N. V. (7, 10)	4	650	86	337
Spinal cord operations (7, 10)	7	1,264	107	626
Thyroidectomies (1, 4, 5)	29	1,118	16	237
Other neck operations (3, 5, 10)	3	410	105	230
Mastectomies, radical (1, 3, 4, 5, 8, 10, 14)	20	1,272	254	732
Mastectomies, simple (1, 5)	5	220	180	200
Thoracic operations (8, 13)	113	2,895	35	575
Biliary operations (1, 3, 4, 5, 10)	16	400	51	100
Gastric operations (1, 3, 4, 5, 8, 10, 14)	41	650	45	233
Splenectomies (4, 14)	2	990	160	525
Intestinal operations above sigmoid (3, 14)	11	230	10	81
Appendectomies (1, 3, 5)	14	62	4	13
Sigmoidal, rectal and anal operations (3, 5, 10, 14)	21	1,220	8	377
Hernia operations (1, 3, 4, 5, 8)	13	306	11	74
Miscellaneous abdominal operations (1, 3, 5, 10)	6	546	14	218
Pelvic operations (1, 4, 5, 8, 10, 14)	30	680	22	266
Prostatic resections, transurethral (5, 6, 11)	220	1,254	4	280
Kidney operations (1, 3, 4, 5)	10	1,144	130	372
Orthopedic operations (1, 3, 9, 10, 14)	31	1,564	40	441
Total	626			

The numbers following the names of operations refer to the footnotes cited in the text.

TABLE 2.—*Relationship of Blood Loss to Total Blood Volume*

Weight	Total Blood Volume	100 Cc. Loss
10 lbs.	450 cc.	22.0 %
20 lbs.	890 cc.	11.0 %
40 lbs.	1,600 cc.	6.2 %
80 lbs.	2,825 cc.	3.6 %
140 lbs.	5,000 cc.	2.0 %
200 lbs.	7,000 cc.	1.4 %

In table 1 are shown blood losses from 626 operations collected from the data of these authors. The cases are grouped according to the types of operation, and the maximal, minimal and average losses are given. It was the unanimous conclusion of all who studied this problem that the blood losses in nearly every operation were greater than expected by the surgeon. The constant ooze of blood from large vascular fields leads to a large loss, of which the surgeon is frequently not cognizant. Accurate measurement of blood loss leads to an appreciation of the importance of better hemostasis. Nevertheless at times, in spite of every effort at hemostasis, the loss will still be large and transfusions should be planned in advance.

Analysis of the literature impresses one with the fact that not enough emphasis has been placed on the relation of the amount of blood lost to the total blood volume. Since the blood volume varies with the weight of the patient, it makes a vital difference whether a given amount of blood is lost from a large adult or from a small child. In table 2 are shown some figures illustrating the relationship of a 100 cc. blood loss to the blood volume in patients of differing weights.[15] Blood comprises 77.7 cc. per kilogram of body weight in the male and 66.1 cc. per kilogram in the female.[16] For all practical purposes one thirteenth of the body weight is blood, and cells make up 45 per cent of the blood volume in men and 40 per cent in women. A simple method of calculating blood volume is to allow 30 cc. of blood for every pound or 75 cc. for each kilogram of body weight. Stewart and Rourke [8] showed blood loss in terms of percentage of total blood volume but did not comment on its critical relation to weight. Nadal [9] pointed out the important relationship between the size of the patient and the amount of blood that could be lost before signs of shock would appear.

9. Nadal, J. W.: Blood Loss in Orthopedic Operations, Univ. Hosp. Bull., Ann Arbor **5**: 74, 1939.
10. Leriche, R., and Vasilaros, E.: De la perte de sang occasionnée par les diverses opérations: Contribution à l'étude de la maladie post-opératoire, Mém. Acad. de chir. **65**: 1242, 1939.
11. Nesbit, R. M., and Conger, K. B.: Studies of Blood Loss During Transurethral Prostatic Resection, J. Urol. **46**: 713, 1941.
12. Wangensteen, O. H.: The Controlled Administration of Fluid to Surgical Patients, Minnesota Med. **25**: 783, 1942.
13. White, M. L., and Buxton, R. W.: Blood Loss in Thoracic Operations, J. Thoracic Surg. **12**: 198, 1942.
14. Oppenheim, A.; Pack, G. T.; Abels, J. C., and Rhoads, C. P.: Estimation and Significance of Blood Loss During Gastrointestinal Surgery, Ann. Surg., to be published.
15. Table 2 is adopted from Robinow and Hamilton (Blood Volume and Extracellular Fluid Volume of Infants and Children: Studies with Improved Dye Micromethod for Determination of Blood Volume, Am. J. Dis. Child. **60**: 827 [Oct.] 1940) and from Gibson and Evans.[16]
16. Gibson, J. G., 2d, and Evans, K. A., Jr.: Clinical Studies of Blood Volume: Relation of Plasma and Total Blood Volume to Venous Pressure, Blood Velocity Rate, Physical Measurements, Age and Sex in Ninety Normal Humans, J. Clin. Investigation **16**: 317, 1937.

Since several of the preceding studies were carried out in the University Hospital [17] our surgical staff has come to realize the importance of a knowledge of blood loss during operation. Further investigations have been made to stress the necessity of admitting that blood will be lost, that its approximate amount should be known and that it should be replaced by blood. Fifty cases were studied, and 42 have been selected for presentation. The method used for determining blood loss was essentially that of Gatch and Little with the following exceptions:

1. Oxyhemoglobin was measured in the Evelyn photoelectric colorimeter.

2. The fluid from aspirator bottle, instrument and glove washings was kept separate from the washtub fluid.

3. The sample from the 50 liters of washtub fluid was taken directly from the washtub before the drapes and gauze sponges were removed. Controlled washings, using known amounts of blood on sample outfits of drapes and sponges, yielded an average recovery of 95 per cent. The detailed method was as follows:

With Evelyn's method, oxyhemoglobin was determined on the solution containing equal volumes of the following fractions:

1. Fluid from drapes and sponges extracted in washing machine in 50 liters of distilled water for two hours.

2. Aspirated fluid and water used to wash instruments and gloves diluted to 5 liters, or to 10 liters if necessary, and finally diluted 1 : 10, or 1 : 5, with distilled water. The solution was centrifuged to clarify it and diluted 1 : 1 with distilled water.

The patient's preoperative concentration of hemoglobin was determined at the same time.

Calculations:

$$\text{Gm. Hb lost} = \text{Gm. \% Hb from blood curve} \times \frac{1{,}000}{250}$$

$$\frac{\text{Hb lost}}{\text{pt's. preop. Hb}} \times 100 = \text{cc. blood lost}$$

The cases here presented were selected for study on the basis that, owing to their character, a high blood loss might be expected; and they were limited chiefly to five categories to facilitate comparison. Particular interest was centered in changes in the blood picture associated with hemorrhage. Therefore many patients whose blood loss was minimal were excluded from the presentation. Consequently the blood loss in these groups does not represent average results from routine operations of their types. The operations were performed by ten surgeons from the resident staff.

In tables 3 to 8 are shown measured blood loss and its percentage of total blood volume, intravenous solutions given in the operating room, blood transfusions given during or immediately after operation, and the degree of hypotension stated in terms of 1 to 4 plus, in patients during various types of operation. In table 3 the blood loss from radical mastectomy is slightly higher than found by others, but, since these operations are always accompanied by such losses, transfusion during these operations has been made a routine at the University Hospital by our staff. Patient 27 developed a moderate hypotension, which was corrected by transfusion of blood equal in amount to the loss. In table 4 the blood loss associated with thyroidectomy is shown. These patients all presented large, recurrent or unusually toxic goiters, and the average blood loss was much higher than found in routine thyroidectomies. In 2 instances the loss was above 25 per cent of the blood volume, but the surgeon realized this fact and replaced the lost blood by transfusion during the operation.

17. Coller and Maddock.[8] Nadal.[9] Nesbit and Conger.[11] White and Buxton.[13]

In table 5 is shown a group of patients presenting difficult technical problems in surgery of the biliary tract. Many had been operated on previously. The majority were jaundiced, and in all the common duct was explored or reconstructed. The operations were long and the blood loss averaged nearly 600 cc. Case 41 is of interest since the blood loss of 1,065 cc. represented 41 per cent of the blood volume; the patient was emaciated and weighed only 86 pounds (39 Kg.). This patient developed an alarming shock state from the operative trauma, blood loss and bile peritonitis and was given 3,000 cc. of blood in the next forty-eight hours, after which convalescence was relatively uneventful. Contrast this 41 per cent loss with that of case 21, in which a much larger amount of blood, 1,455 cc., was lost, the latter amount representing only 27 per cent of the total blood volume. Both cases required extensive replacement by blood. In operations of this character performed on undernourished and jaundiced patients, one should always plan on adequate replacement of the blood loss. The routine immediate replacement of blood in these patients was found to be inadequate at the

TABLE 3.—*Blood Loss During Radical Mastectomy*

Four women, nitrous oxide and ether

Case Number and Sex	Age	Weight, Lbs.	Duration of Operation, Minutes	Blood Loss		Intravenous Solution During Operation, Cc.	Blood Transfusion, Cc.	Hypotension
				Amount, Cc.	Total Volume, %			
1, ♀	59	215	147	827	12.8	1,200	450	+
27, ♀	61	189	189	924	17.8	1,200	900	++
29, ♀	34	121	168	529	14.6	1,200	450	0
40, ♀	55	140	215	1,091	25.8	1,000	450	0
Average, 821 cc., 17.7%								

TABLE 4.—*Hemithyroidectomy and Blood Loss During Subtotal Thyroidectomy for Very Large, Toxic, Adenomatous Goiters*

Eight cases

Case Number and Sex	Age	Weight, Lbs.	Duration of Operation, Minutes	Blood Loss		Intravenous Solution During Operation, Cc.	Blood Transfusion, Cc.	Hypotension
				Amount, Cc.	Total Volume, %			
2, ♀	53	94	110 *	234	8.3	1,400	0	0
3, ♂	14	104	58 *	276	7.5	0	0	0
9, ♀	44	150	140 *	409	9.1	1,000	0	0
10, ♀	51	121	93 *	204	5.3	1,000	0	0
15, ♂	58	185	121 *	389	6.0	1,000	0	0
16, ♀	15	87	102 †	725	27.8	1,000	450	0
20, ♀	15	87	110 †	688	26.4	700	450	0
37, ♀	36	120	90 †	99	2.9	1,000	0	0
Average, 379 cc., 11.7%								

* Tribromoethanol, nitrous oxide and ether.
† Tribromoethanol, nitrous oxide, local procaine.

TABLE 5.—*Blood Loss During Secondary and Plastic Operations on the Biliary Tract*

Eight cases, nitrous oxide and ether

Case Number and Sex	Age	Weight, Lbs.	Duration of Operation, Minutes	Blood Loss		Intravenous Solution During Operation, Cc.	Blood Transfusion, Cc.	Hypotension
				Amount, Cc.	Total Volume, %			
11, ♀	50	134	105	158	3.9	1,000	0	0
14, ♂	54	110	220	412	10.5	700	450	+
21, ♂	51	164	255	1,455	27.5	1,600	900	++
22, ♂	50	178	113	242	3.8	1,100	450	0
28, ♂	68	143	185	406	8.1	1,000	0	++
32, ♀	51	15.8	160	287	6.0	2,000	0	0
39, ♀	34	92	180	454	16.4	650	450	0
41, ♀	51	86	130	1,065	41.0	500	450	++++
Average, 594 cc., 14.6%								

time of this study, and we have since planned for a liter of blood to be given during operation.

Table 6 presents studies of blood loss in 12 cases of cancer of the rectum treated by a single stage abdominoperineal resection. The losses in this group averaged 410 cc., the principal loss resulting from the perineal dissection. While this loss is not great it should always be replaced by blood, as so many of these patients are malnourished, anemic and dehydrated (Milés regimen). The occurrence of hypotension in these patients (case 26) was thought to be of anesthetic origin. Table 7 presents three complicated gastric resections accompanied by a blood loss averaging 600 cc. In table 8 is shown the relatively large blood losses resulting from operation in which large body surfaces are opened. This blood loss is from multiple small rather than from single large vessels. The use of gauze packs as hemostatic agents tends to obscure hemorrhage rather than control it. Table 3 is a similar example of operations on large body surfaces.

Concurrently with the blood loss determinations, observations were made of changes in hematocrit and hemoglobin and plasma protein concentration before and after operation. These findings are listed in relation to blood loss in table 9, and deductions from them agree with those of Stewart and Rourke.[18] There was found no correlation between the amount of blood lost and the simultaneous changes in hematocrit, hemoglobin and concentration of plasma protein immediately before and after operation. These determinaions, therefore, cannot be used to estimate the need for blood volume replacement during and after operation. Obviously, it follows that if one wishes to know the amount of blood lost in any operation one must depend on direct measurement. This approach is not often practical, in which event one must rely primarily on a knowledge of average losses to provide a basis for the replacement of blood loss during operation. Additional blood may be given if the clinical state of the individual demands it. We believe that even minimal blood loss retards convalescence; that all loss over 300 cc. in healthy adults should be replaced and that all blood loss in operations on aged, undernourished, seriously ill or bedfast patients should be replaced with equal quantities of blood.

TABLE 6.—*Blood Loss During Combined Abdominoperineal Resection of the Rectum for Carcinoma*

Twelve cases

Case Number and Sex	Age	Weight, Lbs.	Duration of Operation, Minutes	Blood Loss: Amount, Cc.	Blood Loss: Total Volume, %	Intravenous Solution During Operation, Cc.	Blood Transfusion, Cc.	Hypotension
7, ♂	60	128	107 *	183	4.1	1,200	450	++
13, ♀	55	150	180 *	410	9.0	2,000	0	0
17, ♂	68	128	145 *	523	11.6	1,000	450	0
18, ♀	61	128	185 *	519	13.5	1,200	450	0
23, ♂	49	107	200 *	474	13.3	1,000	450	+
24, ♂	70	125	235 †	686	15.5	1,200	300	+
26, ♀	60	116	110 *	247	7.1	1,100	450	+++
30, ♀	48	158	245 †	494	10.4	1,000	450	0
34, ♂	73	126	156 †	225	5.5	950	450	+
36, ♀	54	138	85 *	483	11.6	1,000	450	0
38, ♂	75	167	185 †	375	6.3	1,100	450	+
42, ♂	48	142	160 †	306	6.1	1,400	450	+

Average, 410 cc., 9.5%

* Spinal nupercaine. † Continuous spinal.

TABLE 7.—*Blood Loss During Operation for Complicated Gastric Lesions*

Three cases, nitrous oxide and ether

Case Number and Sex	Age	Weight, Lbs.	Duration of Operation, Minutes	Blood Loss: Amount, Cc.	Blood Loss: Total Volume, %	Intravenous Solution During Operation, Cc.	Blood Transfusion, Cc.	Hypotension
* 6, ♀	62	131	287	552	14.0	3,000	450 (and 400 plasma)	+++
† 8, ♂	65	114	270	804	20.0	1,000	900	0
‡ 31, ♂	59	134	155	321	6.8	1,000	0	0

Average, 509 cc., 13.0%

* Attempted total gastrectomy. Lesion frozen at gastroesophageal junction. Partial gastrectomy and gastrojejunostomy done.
† Total gastrectomy.
‡ Partial gastrectomy. Previous pyloroplasty.

TABLE 8.—*Blood Loss During Operations Involving Large Body Surfaces*

Three cases

Case Number and Sex	Age	Weight, Lbs.	Duration of Operation, Minutes	Blood Loss: Amount, Cc.	Blood Loss: Total Volume, %	Intravenous Solution During Operation, Cc.	Blood Transfusion, Cc.	Hypotension
* 12, ♀	35	105	158	1,257	39.9	1,250	900	0
† 19, ♂	58	192	210	1,397	20.6	1,500	900	0
‡ 33, ♀	60	125	120	857	22.9	900	450	0

* Resection of presacral chondroma. Anesthesia: nitrous oxide and ether.
† Exploration of large intrathoracic thyroid adenoma. Anesthesia: nitrous oxide and ether (intratracheally).
‡ Resection of large sarcoma of shoulder and hemiscapulectomy. Anesthesia: nitrous oxide and ether.

TABLE 9.—*Blood Loss and Changes in Hematocrit, Hemoglobin and Plasma Protein During Operations*

Case Number	Blood Loss: Amount, Cc.	Blood Loss: Total Volume, %	Hematocrit, Vol. % R. B. C.: Pre-Operative	Hematocrit, Vol. % R. B. C.: Post-Operative	Hemoglobin, Gm. %: Pre-Operative	Hemoglobin, Gm. %: Post-Operative	Plasma Proteins, Gm. %: Pre-Operative	Plasma Proteins, Gm. %: Post-Operative
Radical Mastectomies								
1	827	12.8	43.3	42.3	15.0	12.7	7.21	6.73
25	670	15.8	43.9	41.7	13.6	12.9	7.04	6.86
27	924	17.8	47.2	44.6	15.6	13.3	7.25	6.66
29	529	14.6	42.3	37.6	13.2	10.7	7.86	6.50
40	1,091	25.8	45.7	44.8	13.3	11.8	8.24	7.72
Subtotal and Hemithyroidectomies								
2	234	8.3	34.5	34.2	12.1	11.7	6.40	6.25
3	276	7.5	48.4	43.5	15.6	14.0	7.28	6.73
9	409	9.1	41.6	38.7	11.6	11.3	7.35	7.28
10	204	5.3	46.2	43.4	14.8	13.8	6.70	6.22
15	389	6.0	54.4	51.2	12.7	12.7	7.38	7.35
16	725	27.8	41.4	41.2	13.1	12.7	7.14	7.17
20	688	26.4	39.3	39.0	12.4	11.7	6.53	6.32
37	90	2.9	32.4	44.4	10.2	13.3	7.07	8.10
Biliary Tract								
11	158	3.9	46.6	45.1	15.9	13.9	7.58	6.00
14	412	10.5	43.1	49.4	14.3	14.6	7.42	7.83
21	1,455	27.5	40.4	38.6	13.6	13.8	6.40	5.69
22	242	3.8	52.9	53.3	16.6	17.2	7.28	7.42
28	406	8.1	50.5	48.1	15.6	14.5	7.89	7.42
32	287	6.0	44.5	47.0	14.0	12.9	7.28	7.38
39	454	16.4	40.3	44.0	12.98	12.60	7.93	7.52
41	1,065	41.0	44.0	41.5	14.61	12.44	7.45	6.70
Combined Abdominoperineal Resections								
7	183	4.1	38.4	42.5	15.9	13.1	7.32	7.24
13	410	9.0	46.7	40.9	14.6	12.8	6.94	5.66
17	523	11.6	42.8	40.4	13.2	13.1	7.11	6.80
18	519	13.5	41.3	40.6	13.3	12.6	6.63	6.15
23	474	13.3	39.8	35.5	12.2	11.8	6.56	6.40
24	686	15.5	47.2	46.8	14.3	13.3	7.48	6.97
26	247	7.1	47.8	44.0	15.2	14.0	7.32	7.04
30	494	10.4	37.6	32.4	10.7	9.2	7.68	6.60
34	255	5.5	47.1	44.2	14.7	13.7	6.60	6.36
36	483	11.6	39.8	37.6	11.3	10.8	6.76	6.66
38	375	6.3	39.0	40.5	10.84	11.01	6.80	6.19
42	306	6.1	47.7	42.6	15.00	13.06	6.46	....

18. In table 9 the hemoglobin was determined by use of the colorimeter described by K. A. Evelyn (Oxyhemoglobin, J. Biol. Chem. **115**: 63, 1936); plasma proteins, Gibson and Evans[16] and Pregl, F.: Die Quantitative organische Mikroanalyze, ed. 2, Berlin, 1923.

CONCLUSIONS

From this study we have drawn the following conclusions:

1. No correlation exists among the amount of blood lost and changes in hematocrit, hemoglobin and plasma protein concentrations before and after operation.

2. A knowledge of blood loss during operation as available in the literature offers a practical basis for planned transfusions during operation.

3. The patient is benefited most when the blood loss is replaced by blood, given as the loss occurs.

THE CLINICAL MANIFESTATIONS OF LEPTOSPIROSIS IN LOUISIANA

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NEW ORLEANS

The classic description of infectious jaundice was presented by Weil [1] in 1886, who reported 4 cases in which there was a sudden onset of fever, chills, prostration, jaundice, hepatosplenomegaly, hemorrhagic tendency and renal failure. All 4 patients recovered. Inada and his associates [2] discovered the causative agent, and Noguchi [3] named it Leptospira icterohemorrhagiae. Stimson [4] described a spirochete in the organs of a patient in New Orleans who died presumably of yellow fever and called it Spirochaeta interrogans. Wadsworth [5] introduced laboratory methods for the diagnosis of Weil's disease in the United States. Jeghers,[6] Packchanian,[7] Larson [8] and others have reported numerous cases from this country.

Spirochetal jaundice is not a proper term, because jaundice is present only in about two thirds of the cases. Weil's disease refers to infection with Leptospira icterohemorrhagiae. Leptospira canicola infections occur in man and dog. In this country canine leptospirosis was reported by Meyer and his associates [9] in California, by Molner and Kasper [10] in Michigan, by Clara Raven [11] in Pennsylvania and by Bruno, Wilen and Snavely [12] in Louisiana; but Tiffany and Martorana [13] did not find any evidence of this infection in New York. The European L. canicola infections do not give rise to jaundice in human beings or dogs, but the American type may be icterogenic.

Vervoort, cited by Strong,[14] found in cases of pseudodengue in Java a leptospira which he called Leptospira pyrogenes. This disease is endemic in plantations and may be associated with jaundice and rash. In southeastern Europe Tarassoff [15] and Korthof [16] reported a mild type of leptospirosis in which there was no jaundice. Leptospira grippotyphosa is the name given to the causative organism.

Leptospira hebdomadis is the causative organism of seven day fever, and Leptospira autumnalis is the causative agent of autumn fever in Japan.

Since leptospirosis is a general term which includes all the leptospiral infections, it is advisable to use specific terms, such as leptospirosis icterohemorrhagiae and leptospirosis canicola or canicola fever.

EPIDEMIOLOGY

Rat to rat transmission is accomplished through the contamination of the food by the excreta of the infected rats and less commonly through sexual intercourse among the rats. The incidence of infection is higher among the older than among the younger rats.

Rat to man transmission occurs mainly through the contamination of human food with the excreta of infected rats. Rarely a rat bite may be responsible for infection. The handling of rats is a frequent method of infection, so that the disease is found among sewer workers, harvesters, farmers, sugar cane cutters, fishermen, fish handlers, slaughterhouse employees and miners. Occasionally the infection is acquired by bathing in water contaminated with pathogenic leptospiras. Dog to dog and dog to man transmission in canicola infection is similar to that of the rat borne leptospirosis.

In this series of 30 patients, the groups represented were cooks, gardeners, laborers, farmers, carpenters, porters, warehouse employees, truck drivers and orphans. In most of these cases there was a definite history of contact with rats and dogs.

INCIDENCE

The total hospital admissions to the Louisiana State Charity Hospital of New Orleans from September 1939 to February 1944 were 236,466, while the patients admitted to general medicine during this period were 37,610. During this period there were 28 cases of leptospirosis diagnosed by laboratory methods. Thus the ratio is 1 case of leptospirosis to every 8,445 general admissions and 1 case to every 1,343 general medicine inpatients.

Seven of the 30 patients were Negroes, and the only female in this series was a Negro woman. The age incidence varied from 14 to 68 years, but the majority of the patients were 20 to 40 years old.

The patients were admitted to the hospital from the second to the ninth day after the onset of the disease, but the majority were admitted on the fourth to the sixth day of the disease. The period of hospitalization

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Permission to study their cases, which are included in this report, was granted by Dr. John H. Musser, professor of medicine at Tulane University School of Medicine and senior visiting physician at the Charity Hospital in New Orleans; by Dr. Edgar Hull, professor of medicine at Louisiana State University School of Medicine and senior visiting physician at the Charity Hospital in New Orleans; by Dr. O. P. Daly, director of the Charity Hospital in New Orleans, and by Dr. F. C. Coleman of Touro Infirmary in New Orleans. Dr. Musser and Dr. E. C. Faust gave many valuable suggestions in the preparation of this paper.

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ranged from three to thirty-eight days. Four patients were hospitalized for three to nine days, 5 for ten to nineteen days, 8 for twenty to twenty-nine days and 11 for thirty to thirty-nine days. The duration of the fever ranged from eight to thirty-seven days. In 10 instances the duration of the fever was one to two weeks, in 5 two to three weeks, in 10 three to four weeks and in 4 four to five weeks. Three of the patients died in the second week and 2 in the fourth week of the disease.

CLINICAL FEATURES

Leptospirosis is a hepatorenal syndrome. In the anicteric cases the involvement of the liver is very slight, but there is always a mild hepatitis. In the majority of the cases there is a moderately severe hepatitis, and in some it is very severe. Similarly the kidney lesion may be very mild, moderate or very severe.

Icterus is due to partial biliary obstruction caused by inflammation of the biliary ducts. There is injury and damage of the hepatic cells, and this is a reversible phenomenon. Hemolysis does not play an important role in the causation of the jaundice. The renal lesion is of toxic origin and is primarily tubular. Hemorrhagic phenomena are a characteristic part of the clinical picture. They are apparently the result of the local toxic action of the leptospiras on the capillary endothelium and a deficiency of vitamin K due to liver dysfunction.

TABLE 1.—*Ratio of Leptospirosis Among Hospital Admissions*

Year	General Admissions	General Medicine Admissions
1941	1 to 8,581	1 to 1,436
1942	1 to 4,909	1 to 725
1943	1 to 5,263	1 to 760
1939-1944	1 to 8,445	1 to 1,343

Septicemic Stage.—The incubation period of the disease varied from one to two weeks. The onset of the disease in 20 of the cases was sudden, with either a chilly sensation or a distinct chill, followed by fever, nausea, vomiting, arthralgia, myalgia, frontal headache, prostration, anorexia, diarrhea or constipation. Epigastric pain and discomfort, pain and tenderness in the muscles of the legs and back, as well as painful ocular movements, were very common. Infection of the upper part of the respiratory tract with cough and bloody sputum might simulate atypical pneumonia. The temperature of the patient varied between 101 and 104 F. The respiration was normal or rapid, the pulse was accelerated and there was a tendency to hypotension. Conjunctival injection was present in half of the cases. There was at times a mild injection, but in some cases severe hemorrhages took place. There were usually no hepatic or urinary disturbances, despite the fact that the fever continued to be high. Leptospiras occurred in the peripheral blood and were demonstrated on dark field examination, but there were no circulating antibodies. The duration of these symptoms was about three to seven days.

Hepatic, or Icteric, Stage.—The majority of the patients became icteric about the sixth to the seventh day after the onset of the disease. In a few cases jaundice developed as early as the second or third day and in some as late as the ninth day. According to Inada [2] jaundice appears in the middle of the first week, according to Strasburger and Thill [17] from the third to the ninth day, according to Martin and Pettit [18] on the fifth day, and according to Ashe and his associates [19] from the third to the ninth day. The onset of jaundice was very gradual. Clinically the first evidence was a subicteric hue of the scleras, which progressively became icteric. Two of our patients (6⅔ per cent) were anicteric. Strong [14] has stated that in Japan 60 per cent of the patients were icteric, while in Europe 13 to 58 per cent were anicteric. Larson [8] reported 7 anicteric patients and inapparent icterus in 51 in the United States and Puerto Rico. The duration of this stage was seven to ten days in the series herein analyzed.

The liver was enlarged, tender and often painful. Usually it was about 2 fingerbreadths palpable, but rarely it reached the umbilicus. In 3 cases (10 per cent) the liver was not enlarged yet there was definite jaundice. In the 2 anicteric cases the liver was palpable. Hepatitis appeared to be present in both the icteric and the anicteric cases.

Splenomegaly was present in 3 cases (10 per cent). The spleen was soft and palpable 1 to 4 cm. below the costal margin. Clinically it resembled the splenomegaly of typhoid.

During this stage the gastrointestinal symptoms had a tendency to subside. Vomiting, arthralgia, myalgia and headache were not distressing, but the patient was toxic, apathetic and prostrated and had a continued fever. There was moderate abdominal distention due to low grade ileus and diminished peristalsis.

Hemorrhagic phenomena were present in 16 cases (53.3 per cent). Conjunctival injection, hemorrhages into the eye, petechial hemorrhages, ecchymotic spots in the skin and mucous membranes, epistaxis, melena, hematemesis, hemoptysis and bleeding from the gums were observed, but no demonstrable rashes were noticed.

With the appearance of icterus the pulse had a tendency to become slow. Pruritus occurred in 16⅔ per cent of the patients, but herpes labialis was not observed. There was no generalized lymphadenopathy, but 4 patients (13.3 per cent) had palpable enlarged lymph nodes in the anterior cervical and inguinal regions, which were painless and subsided after recovery.

Respiratory Symptoms.—These were present in 12 instances (40 per cent). The following were observed: cough, expectoration, rarely blood tinged sputum, pharyngitis, bronchitis and at times patchy consolidation of the lungs. Not infrequently the clinical diagnosis of atypical or virus pneumonia was made in anicteric cases with the finding of blood tinged sputum. With the appearance of jaundice and later on the basis of the urinary findings, the presumptive diagnosis of leptospirosis was made.

Cardiovascular System.—The blood pressure was low. At times the heart was enlarged and hemic murmurs were detected. Gallop rhythm, tachycardia developing into bradycardia, premature beats, auricular fibrillation and flutter, pericardial friction rub and evidence of myocardial disease were also observed. The electrocardiogram revealed prolongation of the QT interval and PR interval, defective auriculoventricular

17. Strasburger, J., and Thill, O.: Klinik der Weilschen Krankheit. Mit Mitteilung von 2 neuerdings beobachteten Fällen, Klin. Wchnschr. **8**: 1391, 1929.

18. Martin, L., and Pettit, A. A.: Présentation des préparations microscopics et pièces anatomiques rélatives a la spirochétose ictérohémorrhagique, Compt. rend. Soc. de biol. **79**: 659, 1916.

19. Ashe, W. F.; Pratt-Thomas, H. R., and Kumpe, C. W.: Weil's Disease: A Complete Review of American Literature and an Abstract of the World Literature, Medicine **20**: 145, 1941.

conduction, functional or actual incomplete auriculoventricular block, low T waves, blocked auricular beats, sinus tachycardia, low voltage, with wide and slurred QRS complex. During convalescence the heart and the electrocardiographic findings gradually returned to normal.

Central Nervous System.—Headache, delirium, apathy, hallucinations, disorientation and restlessness were among the common observations. In severely ill patients there were rigidity of the neck and retraction of the head, loss of consciousness and symptoms of meningeal irritation. The following case is interesting from the point of view of the findings:

R. R., a white man aged 52, was admitted to the Charity Hospital on Aug. 7, 1943 with the complaint of headache, chills and fever since July 31 and the development of jaundice on August 5. He worked in a butcher's shop where there were many rats. On admission the temperature was 101 F., the pulse rate 115 and the respiratory rate 40. On August 8 he became irrational and incontinent, and gallop rhythm with a 200 per minute ventricular rate developed. On August 10 the neck became stiff and the patient was completely irrational. Leptospiras were observed in the blood and cerebrospinal fluid on the dark field examination. The pressure of the cerebrospinal fluid was 74, the color icteric, the cell count normal, the Pandy reaction 4 plus, proteins 57 mg. and chlorides 625 mg. per hundred cubic centimeters. All the agglutination reactions as well as the blood cultures were negative. The blood picture showed 4.95 million erythrocytes with 15.8 Gm. of hemoglobin, 27,800 white blood cells with 93 per cent polymorphonuclears. The urine had albumin (1 plus), no sugar and a specific gravity of 1.010, with numerous white and red blood cells and granular casts. The blood urea nitrogen level was 27.6 mg., icterus index 199.8, van den Bergh 40 units direct and the clotting time five minutes. The patient was given digitalis, infusions of dextrose, transfusions and other treatment but died on August 10, with a temperature of 107 F.

Leptospiras were demonstrated in the blood and urine by the dark field method. Agglutinins appeared in the blood but did not rise to diagnostic titer during the hepatic stage.

Nephritic, or Uremic, Stage.—The transition from the hepatic to the nephritic stage was gradual and not clearcut. Even during the septicemic stage there was some diminution in the urinary output, mild albuminuria and occasional red and white blood cells. During the hepatic stage there was oliguria, with red and white blood cells and occasional casts in the urine, but there was no retention of metabolites in the blood. Now symptoms of kidney failure became superimposed on those of hepatic failure, so that a state of cholemia and uremia resulted. The clinical diagnosis of Weil's disease was confirmed in a patient who had a sudden onset of fever with chills, arthralgia, myalgia, icterus and in whom kidney failure finally developed.

All patients had oliguria, while 5 (16⅔ per cent) had anuria. Albuminuria from 1 plus to 4 plus was present in 80 per cent of the cases, while glycosuria was present in 10 per cent. Red and white blood cells and hyaline or granular casts were present in 80 per cent of the cases. There was a steady rise in the blood pressure, a retention of nitrogenous metabolites, lowering of the kidney function tests (such as excretion of phenolsulfonphthalein) and fixation of the specific gravity of the urine but no hyperglycemia. The patient became irrational, restless and drowsy, with a continuous tendency to somnolence. There was disorientation as to time, place and person, and loss of sphincter control, so that the urinary output could not be measured. He became extremely toxic and semicomatose and finally died of uremia and hyperpyrexia. Leptospiras could not be demonstrated in the blood, but they were found in the urine. The agglutinins rose to a diagnostic titer of 1 : 300 or above.

Convalescence.—In favorable cases the intensity of the jaundice and uremia gradually diminished, and there began to be secretion of more urine. The temperature began to fall by lysis, the hemorrhagic phenomena subsided and the patient became free from symptoms but suffered from general weakness for a few weeks. Ordinarily convalescence occurred in the third week, but it might be as late as the fifth or sixth week. The last symptom to disappear was jaundice, which at times persisted a few weeks after the temperature had become normal. In about 25 per cent of the cases in the third to the fifth week of the disease there was a relapse, which suddenly occurred with all the accompanying symptoms of the disease but was usually milder and lasted only two to seven days. Leptospiras were found in the urine, but the titer of the agglutinins in the blood was high.

LABORATORY DATA

Hematologic Observations.—The blood picture was one of microcytic hypochromic anemia. The blood count varied from normal to 1.81 million per cubic millimeter, with an average of about 3.5 million. There was occasionally a slight reduction in the platelet count. The bleeding and coagulation times were not altered. The prothrombin time was determined in 7 cases, and 6 showed moderate to considerable prolongation. The lowest was 40 per cent. The fragility of the erythrocytes was not altered. The sedimentation rate was increased. There was an active leukocytosis in 83 per cent of the cases, ranging from 10,000 to 30,000. In 6 instances the white cell count was within normal limits. There was a striking increase in the number of neutrophils with a shift to the left.

Blood Chemistry.—The van den Bergh reaction was direct. In the beginning of the disease the reaction was not intense, but progressively the icterus index and blood bilirubin levels reached as high as 300 units and 90 mg. per hundred cubic centimeters respectively. The blood chlorides, sugar and cholesterol were not altered. The blood urea and uric acid began to rise, and they reached their peak during the nephritic stage. Usually the urea nitrogen in the blood was around 50 mg., but the highest level in this series was 177 mg. per hundred cubic centimeters. The blood creatinine was determined at frequent intervals. Late during the course of the disease it rose to very high levels. Ten mg. per hundred cubic centimeters of creatinine was found to be a bad prognostic sign, and when the level reached 12 to 14 mg. the outcome of the infection was invariably fatal. The highest level in the present series was 17.8 mg. There was some evidence of reduction in the serum proteins. The carbon dioxide combining power of the plasma was normal or reduced. The hippuric acid test for liver function was reduced, and the cephalin cholesterol flocculation test was at times positive.

Urinary Observations.—The urinary output was diminished, and in the fatal cases there was anuria. Albumin, red and white blood cells, hyaline and granular casts, bile pigments and excess of urobilinogen were present. Glycosuria occurred in 10 per cent of the cases. The phenolsulfonphthalein excretion was reduced.

Stools.—Four patients (13.3 per cent) had clay colored stools.

COMPLICATIONS

Severe hemorrhages may be the usual features of the disease. Pneumonia, meningismus and meningitis are unusual. Multiple bacterial abscesses of the liver, myocarditis, iridocyclitis and optic neuritis have also been reported.

MORTALITY

Strong [14] stated that in Japan the mortality rate is 48 per cent while in Europe it is 4 to 32 per cent. In this series the mortality rate was 16⅔ per cent. A white man aged 39 died on the eighth day of the disease; a Negro man aged 68 died on the twenty-seventh day of the disease; a white man aged 49 died on the thirteenth day; a white man aged 53 died on the eleventh day, and a white man aged 43 died on the twenty-fifth day of the disease. Patients may die at any stage of the disease, but young patients invariably recovered.

LABORATORY DIAGNOSIS

In 1939 laboratory methods for the diagnosis of Weil's disease were introduced in New Orleans. Since that time 45 patients have been admitted to the Charity Hospital with the probable diagnosis of Weil's disease, and 30 were found to have leptospirosis by diagnostic laboratory methods; hence 66⅔ per cent of the presumptive diagnoses were confirmed. In 1 case the diagnosis was Weil's disease on admission. In 5 other cases the admission diagnosis was catarrhal jaundice.

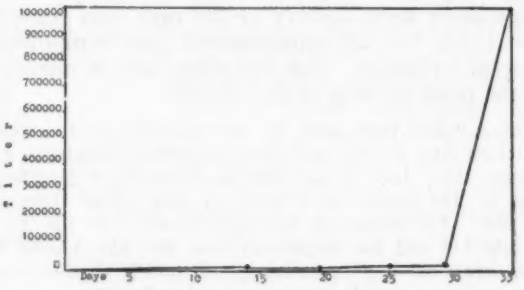
TABLE 2.—*Summary of the Agglutinin Titers*

Cases	Titer
10	1:300 to 1:1,000
3	1:3,000
3	1:10,000
1	1:30,000
2	1:100,000
5	1:1,000,000

Multiple clinical diagnoses were given in every case, including pneumonia and atypical pneumonia, cholecystitis, hepatitis, typhus, typhoid, subacute bacterial endocarditis, abscess of the liver, yellow fever, acute yellow atrophy of the liver, nephritis, tularemia, meningitis, malaria, brucellosis, peripheral neuritis and avitaminosis.

The protean nature of the manifestations of leptospiral infections is well recognized. Therefore all clinical diagnoses must be proved by laboratory methods. During the septicemic and hepatic stages the blood is teeming with leptospiras, and the dark field examination of the blood by an experienced investigator is the best diagnostic method. Schultz [20] observed pseudospirochetes arising from red blood cells, which can be easily mistaken for leptospiras by an inexperienced worker. In this series 7 cases (23.3 per cent) were diagnosed by the finding of leptospiras in the dark field. In 1 case the organisms were found as late as the tenth day after the onset of the disease. If the blood of the patients had been examined routinely during the early stages, the percentage would undoubtedly have been higher. In 1 case leptospiras were found in the urine and in the cerebrospinal fluid in another case.

In 24 cases (80 per cent) the diagnosis was made by the agglutination reaction. The titer began to rise during the hepatic stage, reached the diagnostic level during the nephritic stage and was at its peak during convalescence. In my opinion the diagnostic titer must be at least 1:300, with a steady rise in the titer. Amnestic reaction may be observed in persons who have residual agglutinins in the blood due to a previous clinical or subclinical infection and in whom a fever develops which is not related to leptospirosis. In such cases there may be an early rise in the agglutinin titer, with fall later on.



Agglutinin titers in a case of leptospirosis.

The following case report illustrates the way in which the agglutinin titer may remain at a low level during the course of the disease and then rise very rapidly toward the end, as shown in the accompanying chart.

J. Y., a white man aged 56, was admitted to the hospital on Jan. 12, 1942, the seventh day of his illness, with a tentative admission diagnosis of Weil's disease, catarrhal jaundice, yellow fever or acute yellow atrophy of the liver, because he was having chills, fever, nausea, vomiting, articular and muscular pains, headache, epigastric pain, jaundice, conjunctival injection, auricular premature beats, palpable anterior cervical lymph nodes, leukocytosis of 30,000 with 92 per cent neutrophils and 3.25 million erythrocytes, direct van den Bergh reaction and icterus index of 120 units, with urobilinogen and bilirubin, albumin, red and white blood cells and granular casts in the urine. The blood pressure was 140/70; the blood urea nitrogen level was 37 mg. per hundred cubic centimeters; 0.22 Gm. of sodium benzoate was detoxified, and 50 per cent of injected bromsulphalein was excreted in five minutes, 0 in fifteen and 0 in thirty minutes. The duration of the disease was thirty-five days. The patient was hospitalized thirty-seven days.

Leptospira canicola infection was reported by Bruno and his associates.[12] The serum of these patients agglutinated L. canicola in 1:10,000 and 1:1,000,000 dilutions respectively and L. icterohemorrhagiae in 1:1,000 and 1:1,000,000 respectively. There is no laboratory evidence that dogs in New Orleans suffer from canicola fever, even though jaundice is at times present in local dogs. Cultural methods and guinea pig inoculations were performed in some of the present cases, but the results have been consistently negative, even though young guinea pigs and large inoculums were used. Lately Lederle's slide agglutination antigen has been employed for the quick diagnosis of the disease, but it requires checking with the regular agglutination technic.

TABLE 3.—*Important Data in Fatal Cases of Leptospirosis*

Patient	Age, Yr.	Duration, Days	Levaditi	Agglutination	Dark Field
O. D.	39	8	+		
A. T.	68	27	—	1:1,000,000	
H. G.	49	13	—	1:300	
R. R.	53	11	+	.....	+
J. O.	43	25	..	.....	+

20. Schultz, E. W.: The Pseudospirochetes Derived from the Red Blood Cells, J. Lab. & Clin. Med. **8**: 375, 1923.

Leptospiras can be demonstrated by the Fontana stain in fluids and by the Levaditi stain in tissues. If the interval between death and preservation of the tissues for the silver stain is prolonged, the organisms may disintegrate. Table 3 shows the laboratory data in 5 fatal cases. Although a high agglutinin titer is usually a good prognostic sign, 1 patient (A. T.) died even though the titer was 1 : 1,000,000.

CLINICAL DIAGNOSIS

In New Orleans leptospirosis must be suspected in a patient who presents the following picture:

1. Sudden onset of chills, fever, arthralgia, myalgia, injection of the conjunctiva, hemorrhagic phenomena, leukocytosis.

2. Hepatomegaly and jaundice appearing on the fifth to seventh day; but anicteric cases must be considered.

3. Albuminuria, casts, kidney failure with the retention of metabolites in the blood.

4. A history of exposure to rats or of coming into contact with water or food which is polluted with the excreta of rats and possibly of dogs.

5. The finding of leptospiras in the blood or urine and agglutinins in the serum of the patient.

TREATMENT

It is claimed that the specific treatment of leptospirosis consists in the administration of hyperimmune horse serum which must have an agglutinin titer of 1 : 1,000,000 against Leptospira icterohemorrhagiae and Leptospira canicola. The dose is 60 cc. (Inada [21]). Inada and his associates,[2] Griffith,[22] Pettit and his associates,[23] Zimmermann and Arjona [24] and Walch-Sorgdrager [25] have shown that when the serum is used early in the disease the mortality is lowered. In Japan the mortality rate dropped from 30.6 to 18.3 per cent. In this country Gaines and Johnson [26] used 30 cc. of convalescent serum, and Ashe and his associates [19] used 500 cc. of convalescent whole blood with good results. To be effective the convalescent serum must have a titer of 1 : 20,000. In the present series no hyperimmune horse serum was used. One patient received 250 cc. of convalescent whole blood in the fourth week of the disease, with no appreciable results.

All arsenicals are probably contraindicated, even though neoarsphenamine has been used in some cases with questionable results.

Sazerac and Nakamura [27] used sodium bismuth tartrate intravenously in guinea pigs with favorable results. Uhlenhuth and Seiffert [28] used soluble colloidal bismuth chiniofon compound and reported good results. None of these drugs have been tried in the New Orleans series. Sulfonamides were administered in some of these cases, but they appeared to have no effect on the leptospiras. However, they are indicated when there is a bacterial complication.

Since hyperimmune horse serum and convalescent serum are not usually available and since the diagnosis of the disease is made late during the course of the infection, it is obvious that treatment must be symptomatic. The patients are given high carbohydrate, high protein and high vitamin diets to support the liver. Calcium gluconate is administered parenterally. The fluid intake of the patient must be adequate, so that fluids must be given by mouth, intravenously or by hypodermoclysis. Saline and dextrose infusions should be given frequently. When kidney failure becomes apparent the amount of dextrose must be increased, caffeine derivatives must be given in moderately large doses and hot applications or diathermy must be applied to the lumbar regions to encourage the secretion of urine. Mercurial diuretics are contraindicated. Small transfusions are helpful. Sedatives must be used when needed; cardiac tonics and stimulants are indicated when there is derangement of cardiac functions. During convalescence tonics, vitamins and iron should be administered.

PROPHYLAXIS

Wani [29] prepared a vaccine by treating emulsions of infected liver or cultures with 0.5 per cent phenol and refrigerating for seven days. Ten thousand two hundred and sixty-two miners were inoculated; they showed a morbidity of 0.3 per cent, while in the control, nonvaccinated, group the morbidity rate was 1.12 per cent. The serum of such persons protected guinea pigs against lethal doses of leptospiras. Van Thiel [30] used living avirulent strains of leptospiras which were maintained in cultures for eight years. He inoculated 5 persons with this strain. Four had atypical attacks, but the fifth manifested icterus. It is not advisable to use living leptospiras, since the factors which enhance the virulence of the organisms are not known. In the United States the disease is sporadic and there is no necessity for prophylactic inoculation.

SUMMARY

A clinical report on 30 cases of leptospirosis in Louisiana reveals that:

1. The incidence among the Charity Hospital inpatients from 1939 to 1943 was 1 case of leptospirosis to 8,445 general admissions and 1 case to 1,343 general medical admissions, while in 1943 it was 1 case to 5,263 general admissions and 1 to 760 general medical admissions.

2. Two patients had L. canicola infection.

3. The onset of the disease was sudden in two thirds of the cases, and icterus developed between the sixth and the seventh day after the onset of fever. Two patients were anicteric. The van den Bergh reaction was direct; the prothrombin time was prolonged, and hippuric acid excretion was reduced. In 10 per cent of the cases the liver was not enlarged even though jaundice was present. Splenomegaly was present in 10 per cent, hemorrhagic phenomena in 53.3 per cent and respiratory symptoms in 40 per cent of the cases. There was electrocardiographic evidence of cardiac lesions. All patients showed varying grades of pathologic changes in the kidneys, but 16⅔ per cent had anuria, 80 per cent had albuminuria, casts, red and white blood cells, 10 per cent glycosuria and 83.4 per cent had leukocytosis. The phenolsulfonphthalein excretion

21. Inada, R.: Prophylaxis and Serum Treatment of Spirochaetosis Icterohemorrhagiae, Japan M. World **2**: 189, 1922.
22. Griffith, A.: Cultivation of L. Icterohemorrhagiae and the Production of Therapeutic Spirochaetal Sera, J. Hyg. **18**: 59, 1919.
23. Pettit, A., and others: Les spirochétoses, Bull. Office internat. d'hyg. pub. **29**: 1023, 1937.
24. Zimmermann, E., and Arjona, E.: Serologischer Titer und Heilwert der Seren gegen Weilsche Krankheit, Ztschr. f. Immunitätsforsch. u. exper. Therap. **84**: 111, 1934; abstracted, Trop. Dis. Bull. **32**: 601, 1935.
25. Walch-Sorgdrager, B.: Leptospiroses, Bull. Health Organ., League of Nations **8**: 143, 1939.
26. Gaines, A. R., and Johnson, R. P.: Weil's Disease: Report of Seven Cases, Arch. Int. Med. **60**: 817 (Nov.) 1937.
27. Sazerac, R., and Nakamura, H.: Le bismuth dans la spirochétose ictérohémorrhagique, Presse méd. **1**: 759, 1927.
28. Uhlenhuth, P., and Seiffert, W.: Untersuchungen über die Ausheilung der Weilschen Krankheit bei Meerschweinchen unter der Behandlung mit Bismuto-Yatren A, Zentralbl. f. Bakt. (Abt. 1) **114**: 241, 1929.
29. Wani, H.: Ueber die Prophylaxie die Spirochaetosis icterohemorrhagica Inada durch Schutzimpfung, Ztschr. f. Immunitätsforsch. u. exper. Therap. **79**: 1, 1933.
30. van Thiel, P. H.: Immunization Against Weil's Disease with Living Avirulent Leptospira, Geneesk. tijdschr. v. Nederl.-Indië **78**: 1859, 1938.

was reduced, and there was elevation of blood urea and creatinine. The duration of the disease was three to six weeks, and the mortality rate was 16⅔ per cent.

4. Sixty-six per cent of the suspected cases of leptospirosis were confirmed by laboratory methods. Seven cases (23.3 per cent) were diagnosed by the finding of leptospiras in the blood, 1 by their presence in the urine and 1 by their presence in the spinal fluid; in 2 fatal cases diagnosis was made by the Levaditi stain of sections of organs. In 24 cases (80 per cent) diagnosis was established by the agglutination reactions, in which the diagnostic titer ranged from 1 : 300 to 1 : 1,000,000.

5. The treatment was symptomatic, but 1 patient received 250 cc. of convalescent whole blood.

HYPERSENSITIVITY OF THE TUBERCULIN TYPE TO CRYSTALLINE PENICILLIN SODIUM

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In the limited number of reports that have appeared on the clinical use of penicillin sodium, urticaria seems to be the chief, if not the only, evidence of sensitivity to this drug. Keefer [1] reports 14 cases of urticaria out of 500 cases treated and Lyons [2] 12 cases of urticaria out of 209 treated. These reactions from commercial penicillin sodium, if predicated on a sensitization mechanism, are obviously not necessarily due to penicillin itself.

During the course of some studies designed to determine whether a correlation exists between the immediate local reactions obtained with certain lots of commercial penicillin sodium on intramuscular injection in man and those obtained by intracutaneous injection of the same material in rabbits and in man, a person, J. D. W., was injected intracutaneously in the left arm with four lots of commercial penicillin sodium representing the products of three different manufacturers. Each injection consisted of 0.05 cc. containing 1,000 units of penicillin. The subject had never been inoculated with penicillin previously but has worked with a variety of molds for the past fifteen years. Our investigations (about 200 intracutaneous injections in 12 people) indicate that most lots of penicillin sodium, on intracutaneous inoculation of 1,000 units dissolved in 0.1 cc. of water, produce within one to two hours an area of about 8 to 10 mm. of erythema and edema, while with some lots a small blister subsequently develops at the site of the inoculation. It therefore may be said that most commercial penicillin sodium is a mild primary irritant when injected intracutaneously. In contrast to this, crystalline penicillin has no primary irritating properties on intracutaneous injection, judging from 24 tests on 6 people. It is obvious, therefore, that the irritating properties of commercial penicillin sodium are from contaminants resulting as a by-product of its manufacture. None of the four skin tests in J. D. W. reacted during the first two hours. The first signs of a reaction occurred about six hours after the intradermal tests had been made, at which time some redness and itching at the point of inoculation were noted. On observation twenty-four hours after injection, the erythematous areas had extended considerably and some infiltration was present. By the forty-eighth hour the points of inoculation had fused together into one large, erythematous, infiltrated, vesicular area. The reaction reached its peak between the forty-eighth and ninety-sixth hours, at which time the area measured 108 by 20 mm. and there was considerable exudation (fig. 1). Following the application of calamine lotion the area dried up, the superficial skin exfoliated and healing gradually took place.

Since commercial penicillin sodium is not a chemically pure compound it seemed possible that this person might be sensitive to some contaminating product resulting from the process of extraction. It is of interest that, of the three companies which produced the material injected into J. D. W., two produce penicillin by the deep tank process while the third uses the surface culture technic. All three companies use different methods of extraction.

In order to determine whether J. D. W.'s hypersensitivity was due to "penicillin" as such or to some contaminant resulting from the process of extraction,

Fig. 1.—Ninety-six hours after the first four intradermal tests with commercial penicillin sodium.

he was given two intracutaneous injections of penicillin in the right arm; one, the crystalline product (1,650 units per milligram) and the other a commercial product. The latter was produced by the surface culture technic. Both injections consisted of 1,000 units of penicillin contained in a volume of 0.05 cc. of water. At the same time, similar injections were made into two other persons as controls. Observations after one and two hours showed no reaction in any of these three individuals. The following day (approximately twenty-four hours later) the controls showed no reaction as a result of the injection of either the crystalline or the commercial penicillin sodium, but J. D. W. exhibited a definite reaction to both products. The areas were erythematous and infiltrated, and each measured 15 mm. in diameter. Within forty-eight hours the areas had increased to 30 mm. in diameter (figs. 2 and 3).

It should be pointed out that, although the crystalline penicillin sodium is for all practical purposes a pure product, there might be associated with it minute amounts of contaminating material resulting from the process of extraction and not eliminated in crystallization. The fact, however, that the reaction obtained by the intradermal injection of the crystalline material elicited a reaction of approximately the same intensity as that produced by the injection of the commercial

From the Food and Drug Administration.

1. Keefer, C. S.; Blake, F. G.; Marshall, E. K., Jr.; Lockwood, J. S., and Wood, W. B., Jr.: Penicillin in the Treatment of Infections: A Report of 500 Cases, J. A. M. A. **122:** 1217 (Aug. 28) 1943.

2. Lyons, C.: Penicillin Therapy of Surgical Infections in the U. S. Army, J. A. M. A. **123:** 1007 (Dec. 18) 1943.

product would tend to obviate any minute amount of contaminating material as the primary cause of the reaction.

The course and clinical characteristics of the reaction exhibited to the intradermal injection of the penicillin had led us to believe that the hypersensitivity shown

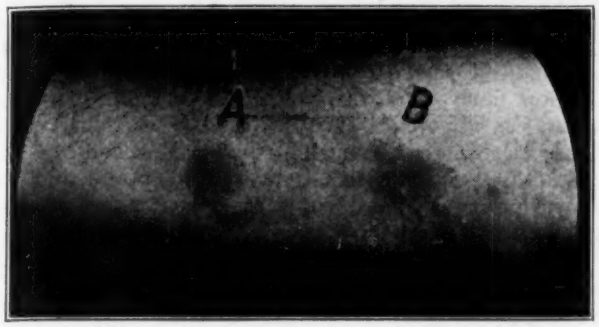

Fig. 2.—Twenty-four hours after intradermal tests with commercial penicillin sodium.

by J. D. W. was of the "tuberculin" variety. But in order to determine whether there was any eczematous component, it was decided to perform patch tests on him. Two patch tests with a few drops of commercial penicillin sodium (assaying 4,000 units per cubic centimeter) were performed. One test was applied to the site at which the crystalline penicillin sodium had previously been injected and the other to the upper arm in a previously uninjected area. The site at which the crystalline penicillin sodium had been injected had apparently completely healed except for a faint tinge of redness. The patches were removed after forty-eight hours, and the one which had been applied to the area where the crystalline penicillin had previously been injected showed a sharply delineated erythematous infiltrated area (fig. 4), whereas the patch applied to the upper arm was completely negative.

In order to elucidate this phenomenon further, four patch tests were then applied to the subject's left arm; two were of commercial penicillin sodium (4,000 units per cubic centimeter) and two of the corn steep liquor medium normally used for the production of penicillin. One with each substance was applied to areas where

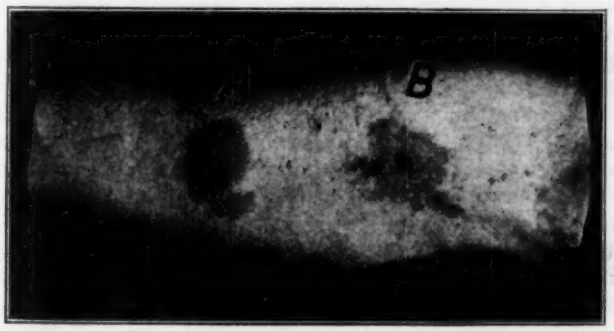

Fig. 3.—Forty-eight hours after intradermal tests with crystalline penicillin sodium.

previous penicillin injections had been made, and one with each substance to areas where no previous penicillin injection had been made. The areas where the penicillin sodium had previously been injected were, at the time of patch testing, apparently healed except for a faint residual tingue of redness. In order to be sure that neither the penicillin sodium nor the corn steep liquor medium was a primary irritant, these substances were applied as patch tests to 4 persons who had not exhibited any reaction to penicillin sodium on intradermal injection. All tests were removed and read at the end of forty-eight hours. The penicillin sodium applied to the previously penicillin injected area (J. D. W.) gave a reaction identical to the one that he exhibited to the same test on the other arm, previously described. The test with the corn steep liquor medium gave a weakly positive reaction consisting of erythema and very slight infiltration, but this was quantitatively much less than the reaction manifested by the penicillin sodium. After ninety-six hours the patch test to the penicillin sodium was still positive, whereas that to the corn steep liquor medium had faded out. The patch tests applied to the upper arms as well as the tests applied to the controls were completely negative.

The serum of J. D. W. was tested for precipitins against 8 samples of commercial and one of crystalline penicillin sodium. True precipitation was not demonstrated. Although with some samples of penicillin a fine precipitate developed, this type of precipitate was demonstrated also with normal serum and was probably due to a chemical contaminant of these samples.

Fig. 4.—Forty-eight hour appearance of patch test applied to site of previous injection of crystalline penicillin.

Heterophile agglutinins were demonstrated in low titer (1:16) in J. D. W.'s serum. Since these agglutinins could be removed completely by adsorption with guinea pig kidney and not by adsorption with rabbit erythrocytes, they were classified as native rather than serum sickness agglutinins.[3]

In order to determine whether it was possible to transfer the sensitivity shown by J. D. W. to animals, 0.5 cc. of his serum was injected intradermally into two areas on the clipped abdomen of two rabbits. At the same time two 0.5 cc. amounts of a normal serum, obtained from a person (G. G. S.) who had never been injected with penicillin, were injected similarly. In the first rabbit, twenty-four hours later, 1,000 units of crystalline penicillin sodium was injected into two of the areas previously injected with serum (one injection in the area injected with G. G. S.'s normal serum and one injected in the area inoculated with J. D. W.'s serum). In the remaining two areas, commercial penicillin sodium was injected similarly. The second rabbit, which had been treated with these two serums, was injected with penicillin sodium in exactly the same manner forty-eight hours after the injection of the

3. Stuart, C. A.; Welch, H.; Cunningham, J., and Burgess, A. M.: Infectious Mononucleosis (Further Studies), Arch. Int. Med. **58**: 512 (Sept.) 1936.

serum. Following injection of the penicillin, the rabbits were observed for a period of three days. At no time during this interval did a reaction occur in the skin. Passive transference experiments were attempted in man. Six persons were injected intradermally in separate sites with 0.1 cc. of J. D. W.'s serum, 0.1 cc. of a normal serum (from an individual who had never been exposed to penicillin and who, on skin testing with crystalline penicillin, exhibited no cutaneous reactivity) and at a third site with 0.1 cc. of crystalline penicillin sodium containing 1,000 units. Twenty-four hours later, at the site of the previous injection of serums (both J. D. W.'s and control), 1,000 units of crystalline penicillin sodium in a volume of 0.1 cc. was injected. These six persons were kept under observation for three quarters of an hour and no reaction developed during this time or within the next twenty-four hours. Two of the subjects, however, C. W. P. and V. C., both of whom had had a number of previous intradermal injections of commercial penicillin sodium, showed reactions (erythema plus itching) at the site of these injections.

COMMENT

From a study of the reactions given by J. D. W. it appears that this person's hypersensitivity is definitely of the tuberculin type. Our reasons for stating this are (*a*) the lack of any immediate reaction to the intradermal injection of the material, (*b*) the fact that the reactions first became manifest approximately six hours after the intradermal introduction of the allergen and reached a maximum between twenty-four and forty-eight hours, (*c*) the fact that the reaction clinically consisted first of erythema, then infiltration and subsequently exudation, (*d*) the lack of demonstrable anaphylactic antibodies as evidenced by the negative precipitin tests and (*e*) the lack of demonstrable passive transference antibodies as evidenced by the failure to transfer the sensitivity to human volunteers.

It should be emphasized that as far as we were able to determine this person's sensitivity was to pure crystalline penicillin sodium. The crystalline material used was a portion of the master standard which has been established by the Food and Drug Administration for the assay of penicillin and as far as is known is a definite crystalline entity.

We are unable to state unequivocally the meaning of the positive patch test. Although clinically the reaction was of an eczematous nature and consonant with that seen in an eczematous hypersensitivity, it is difficult to explain the negative patch tests in J. D. W. when applied to normal skin. As far as we can see, the reason for the lack of reaction on the part of the normal skin could have been from one of two causes: (*a*) the eczematous hypersensitivity did not exist except in the areas that had previously been injected with penicillin or (*b*) the normal skin was less permeable than the areas that had previously been injected, so that the penicillin could not get to the eczematogenous shock tissue. It is possible, of course, that the positive patch test result in the lower arm was in a sense pseudopositive in that it was not a reaction on the part of a hypersensitive epidermis but a reaction of the cells of the reticuloendothelial system in the cutis brought about by the transepidermal penetration of the allergen or, in other words, another demonstration of this individual's tuberculin type of sensitivity.

Ordinarily the tuberculin type of hypersensitivity indicates that the individual has had exposure to the living agent. J. D. W. gives no history of an illness which we could reasonably state was due to Penicillium sp., but this man has been intimately exposed to molds of various kinds for the past fifteen years, so that it is not too unreasonable to assume that he has had a subclinical infection with Penicillium sp. or an immunologically related fungus, which has caused this alteration in his immune responses.

Preliminary unpublished observations in this laboratory indicate that various sensitization phenomena may develop fairly readily to penicillin in both man and animals. The experience with J. D. W. and these facts suggest that penicillin should be handled with caution, especially in its commercial production, in which intimate contact with large volumes of this drug and great numbers of spores cannot be avoided.[4]

SUMMARY AND CONCLUSIONS

1. A person was observed who exhibits a tuberculin type of hypersensitivity to crystalline penicillin sodium. The man had no prior exposure to penicillin.

2. However, he has had intimate contact with molds over a period of years.

3. The significance of such a hypersensitivity when the drug is to be used therapeutically is unknown.

PENICILLIN IN THE TREATMENT OF CAVERNOUS SINUS THROMBOPHLEBITIS

RECOVERY WITH UNILATERAL ASCENDING OPTIC ATROPHY

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AND
W. B. ANDERSON, M.D.
DURHAM, N. C.

Until the advent of the sulfonamides cavernous sinus thrombosis or thrombophlebitis, infected with the staphylococcus, was universally fatal, but several instances of recovery under sulfonamide treatments have been reported.

We shall report in this paper an instance of cavernous sinus thrombosis, with staphylococcic septicemia, which was successfully treated with penicillin.

A detailed anatomic description of the cavernous sinuses and the clinical significance of their tributaries is contained in a paper by Grove.[1] According to this author, when a thrombophlebitis of the facial vein develops as a result of the injudicious incision of a furuncle of the upper lip, or the extraction of a hair from an infected follicle of the brow or nares, and this thrombophlebitis extends through the angular and ophthalmic veins to the cavernous sinus (the anterior route) the mortality is 100 per cent. Statistical studies, gathered from previous reports, which included cavernous sinus thrombosis as an extension of the thrombophlebitis from the lateral or the pterygoid sinuses, reveals a mortality of 90 per cent.

4. Since submission of this article a study of 140 unexposed persons indicates that approximately 5 per cent exhibit a tuberculin type of reaction to the initial injection of crystalline penicillin sodium.

From the Departments of Medicine and Surgery, Duke Hospital and Medical School.

The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for clinical investigations recommended by the Committee on Chemotherapeutic and Other Agents of the National Research Council.

1. Grove, W. E.: Septic and Aseptic Types of Thrombosis of the Cavernous Sinus, Arch. Otolaryng. **24**: 29 (July) 1936.

In 8 instances of cavernous sinus thrombosis studied at Duke Hospital, including 1 in which 10,000 units of penicillin was administered intravenously and 15,000 units by continuous intravenous drip during the twenty-four hour hospital stay, all the patients died. As late as 1937, MacNeal and Cavallo [2] could find records of only seven reported recoveries from acute thrombosis of the cavernous sinus.

However, the Wolfes [3] report a recovery from an anterior focus (infected hair follicle) through the use of sulfathiazole.

Skemp, Afrenow and Rhoads [4] also report a recovery from an anterior focus (infected hair follicle of brow) due to the use of sulfathiazole (149 Gm. in twenty-three days, at one time 21 Gm. per day). Schall [5] cites three recoveries due to the use of sulfonamides by Barnshaw, Seydell and Pace.

The case here reported is of especial interest, particularly to ophthalmologists, in that we were able to observe the obliteration of branches of the retinal artery in association with engorgement of the retinal veins and a rapid atrophy of the optic nerve.

REPORT OF CASE

History.—A white farmer aged 30 was admitted on Oct. 31, 1943 in a semicomatose condition. Four days before admission he noticed a small furuncle in the right external naris. The following afternoon he received a smart blow across the bridge of his nose and later in the evening developed a severe pain in this area and severe bifrontal headache. The next morning, two days before admission, he had a hard chill, which was followed by high fever. At this time periorbital edema was apparent, and during the day it progressed to such an extent that he could not open his eyes. Thick yellow pus exuded from the right eye. The edema and redness extended from the bridge of the nose up over both frontal areas and down across both maxillae. The patient was given sulfadiazine while at home, in spite of which he continued to have chills and fever. On the morning of admission he became stuporous and could be aroused only by painful stimuli.

On admission, three days after onset, he presented the picture of an extremely ill person lying quietly in bed in a semicomatose state. There was bilateral exophthalmos with a pronounced swelling of the lids. The right upper lid could not be voluntarily retracted; the left could be retracted partially. A brawny, deep reddish purple swelling extended from below the mandible over the nose and cheeks well up to the hair line. The nose was remarkably swollen, being enlarged to more than twice its normal size (fig. 1). There was local elevation of temperature and much tenderness over the entire area. The right side of the face in all respects showed greater involvement than the left. The conjunctiva of the right eye was chemotic, the right eye more proptose than the left. Movement of the right eye was limited, but no paralysis was noted at this time. There was no involvement of the fundi at this stage of the disease.

The lungs were clear both to physical and to x-ray examination. Save for a loud systolic murmur over the apical region, the heart was normal. The remainder of the examination revealed nothing of interest.

Laboratory Studies.—Blood Kahn and Kline reactions were negative. Blood examination revealed 5,150,000 red blood cells, hemoglobin 16.0 Gm., 30,600 white blood cells, of which 89 per cent were segmented polymorphonuclears, 0 per cent stab cells, 0 per cent young forms, 0 per cent eosinophils, 0 per cent basophils, 1 per cent mononuclears, 5 per cent large lymphocytes and 5 per cent small lymphocytes.

Blood cultures on October 31 yielded two colonies of hemolytic Staphylococcus aureus per cubic centimeter, November 3 less than one colony of hemolytic Staphylococcus aureus per cubic centimeter, and November 5, 7 and 9 no growth.

In the urine November 1 albumin was 1 plus, and there was an occasional red blood cell and white blood cell in the sediment. November 6 there was a trace of albumin and an occasional red blood cell. Subsequent examinations of the urine gave normal results.

Course in the Hospital.—The patient had been given sulfadiazine before admission, and the concentration of sulfadiazine in the blood was 7.5 mg. per hundred cubic centimeters. During the next twelve hours he was given 3 Gm. of sulfadiazine intravenously and 4 Gm. by mouth, but despite this his condition grew worse. The edema and induration became so great as to make fundus examination impossible. It was decided that penicillin should be given, and he then received 10,000 units intravenously and 5,000 units subcutaneously. No further intravenous administration of the material was given, but the subcutaneous route was used throughout his hospital stay in dosages

Fig. 1.—Appearance of the patient three days after admission to the hospital. The face, eyelids and nose are edematous.

as shown in the chart (fig. 4). Since the differential showed a predominance of segmented forms of polymorphonuclear cells, staphylococcus antitoxin was not given.

No change in his condition was apparent until six days after admission, at which time he became rational and responded to questions. The swelling of his face was less, and the temperature had fallen considerably. He complained bitterly of a frontal headache, which was somewhat worse on the right.

His course from that time was one of steady improvement. By the fourteenth hospital day penicillin was discontinued, as the patient had been afebrile for twenty-four hours. However, on the nineteenth hospital day his temperature had risen to 38.5 C. (101.5 F.) and the headache, which had improved somewhat, became more severe. Penicillin was again given and continued for eight days. After two days he was relieved of his headache entirely, became afebrile, and his improvement became more pronounced. On the tenth day the swelling had subsided sufficiently to permit the use of the left eye. On the twelfth day the left lid was practically normal, the right still greatly swollen. On the twenty-second day of illness the right lid could be partially elevated. It was then discovered that vision in the right eye was limited to light perception.

2. MacNeal, W. J., and Cavallo, M. E.: Streptococcus Bacteremia and Afferent Thrombosis of the Cavernous Sinus with Recovery, J. A. M. A. **109**: 2139 (Dec. 25) 1937.
3. Wolfe, C. T., and Wolfe, W. C.: Thrombosis of the Cavernous Sinus with Recovery, Arch. Otolaryng. **33**: 81 (Jan.) 1941.
4. Skemp, H. I.; Afrenow, M. L., and Rhoads, P. S.: Thrombosis of the Cavernous Sinus with Staphylococcic Septicemia Treated by Intravenous Injection of Sodium Sulfathiazole with Recovery, Arch. Otolaryng. **34**: 1025 (Nov.) 1941.
5. Schall, L. R.: Treatment of Septic Thrombophlebitis of the Cavernous Sinus, J. A. M. A. **117**: 581 (Aug. 23) 1941.

On the twenty-sixth day of the illness the sensorium had cleared and the condition of the patient was such as to permit a satisfactory ophthalmologic examination. Vision of the right eye was reduced to light perception. The left eye was apparently normal. The upper and lower lids were both puffy, the epidermis glazed and cracked and discolored a dusky brownish red. There was considerable bulbar chemosis bilaterally, the right being more pronounced than the left. The pupils were regular and equal and reacted to light. There was bilateral limitation of upward motion. The intraocular tension was not recorded. Ophthalmoscopic examination of the left fundus revealed a normal disk, macula and vascular tree. The right disk showed moderate swelling, with engorgement of the retinal veins and partial collapse of the arterial bed. There was a diffuse retinal edema, the macula being sharply outlined but not having the cherry red color suggesting occlusion of the central retinal artery. One received the impression, nevertheless, that the retinal edema and the accentuated macula were the result of ischemia, secondary to the collapse of the arterial tree, the expression collapse being here used as best describing the appearance of the arteries. The inferior temporal artery also showed extensive perivascular sheathing, as did the other branches though to a lesser degree.

Fig. 2.—Appearance at discharge from the hospital. There is still brawny edema over the bridge of the nose, pronounced dilatation of small veins over the nose, and ptosis of the right lid.

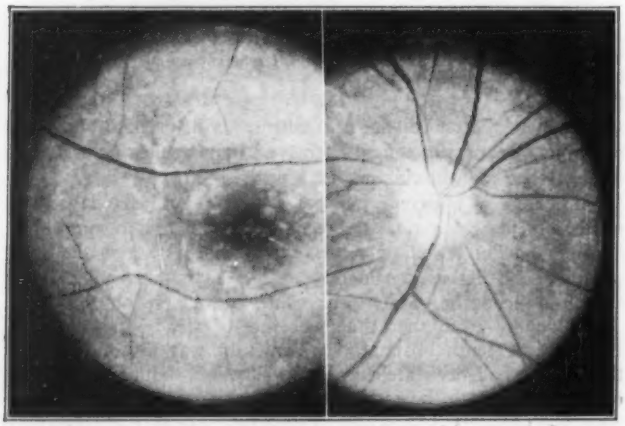

Fig. 3.—Right fundus five months after onset. The arteries are constricted; there is also retinal edema.

The patient was discharged from the hospital after thirty-eight days. There was total loss of vision in the right eye. Sight in the left eye was unimpaired. Otherwise there were no symptoms. Slight edema of the upper part of the face persisted, particularly over the right orbit and the bridge of the nose. Also over the nose small dilated veins could be seen (fig. 2). There was a paresis of the right superior rectus and a ptosis of the right lid. The fundi remained as described.

On Feb. 17, 1944, sixty-one days after discharge, the patient returned to the clinic. The small veins (the inferior palpebral arcade) beneath both eyes were considerably dilated, with some fulness of the veins over the temporal area. There was occasional frontal headache. Vision in the right eye remained limited to light perception.

The optic fundi were examined in detail. The left was normal. The right disk was slightly elevated. A pronounced pallor was already apparent. The sheathing of the arteries noted previously was not so apparent but was present to an abnormal degree. The arterial bed was more constricted near the disk than in the areas between the first and second bifurcations. The macula reflex was normal. Retinal edema was not apparent with the ophthalmoscope but could be demonstrated by fundus photography.

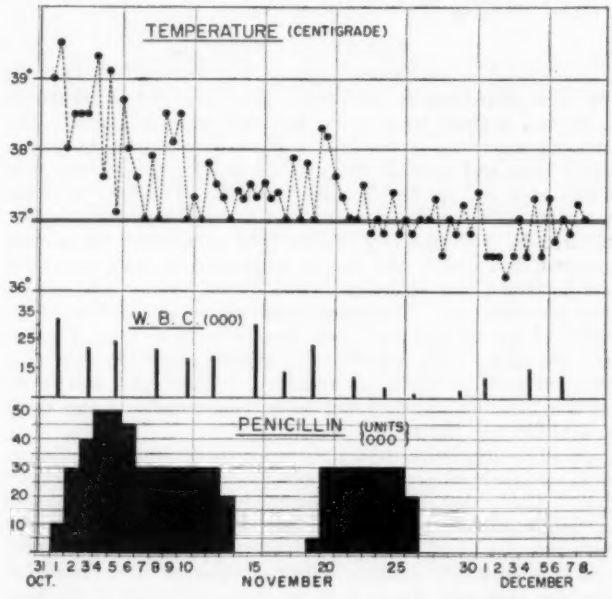

Fig. 4.—Temperature, white blood cells and penicillin therapy while patient was in the hospital.

The physical examination on this date was otherwise negative.

The patient returned on March 21, approximately three months after discharge. Collateral superficial circulation about the lower lids in association with the temporal veins was more apparent. The bridge of the nose, the malar eminences and the median portion of the forehead appeared as a red mask, and slight magnification revealed a tremendous number of dilated interlacing venules.

The left fundus was again found to be normal; vision 20/20. Vision in the right eye was limited to light perception. The disk showed great pallor with minimal gliosis. The macula appeared normal and the veins appeared normal in size and color. The arteries continued to show the great constriction noted previously. The perivascular sheathing of the arteries was not so prominent but was present. The arteries continued to show the greater constriction near the disk. Figure 3 is a fundus photograph on this date showing this abnormality in the caliber of the arterial tree. Some retinal edema still persisted.

COMMENT

Two questions arise:

1. Was the diagnosis correct?

2. What is the explanation for the constriction of the arterial tree and the optic atrophy?

As proof of the accuracy of the diagnosis in this case (1) there is the history of the furuncle in the lateral nasal wall with the secondary insult resulting from the sharp blow over the nasal bridge; (2) after a short incubation period there is the onset of general malaise, chills and increased temperature; (3) there is the definite bacteremia, staphylococci being recovered on two occasions from the blood stream; (4) there is the bilateral exophthalmos, chemosis of the conjunctiva, edema of the face and dusky red discoloration of the skin as evidence of venous obstruction and, finally, there is (5) the profound stupor.

The increased perivascular sheathing of the proximal portions of the retinal artery, with constriction in these portions, and papilledema followed by secondary atrophy is difficult to explain. As a matter of fact no thoroughly satisfactory explanation has been offered as to why cavernous sinus thrombosis, proved at autopsy, can occur without papilledema. The explanation that the central retinal vein may empty into one of the ophthalmic veins rather than the cavernous sinus seems inadequate. The elder Stocker in 1906 suggested that papilledema in cavernous sinus thrombosis is uncommon because the arterial pressure in the eye is, at least in some cases, reduced by the increase in venous pressure coincident with the venous obstruction. In this particular case we feel that there was impediment to the arterial circulation, definitely more than would be expected by the relatively mild papilledema. The sheathing of the arteries suggested an inflammatory reaction in the arterial wall. This inflammatory reaction could have extended directly along the artery from the sinus, since it is here that the artery comes in closest contact with the infected focus; or the apparent inflammatory reaction, with constriction most pronounced in the proximal portions of the arterial tree, may have been due to the irritation of the sympathetic plexus in the carotid sheath in the sinus.

In any case it is probable that the atrophy was secondary to embarrassment of the arterial circulation with ischemia and later edema of the retina; in other words, an ascending degeneration.

CONCLUSIONS

The efficacy of penicillin as a therapeutic agent is further demonstrated when used in cavernous sinus thrombosis.

Optic atrophy, resulting from cavernous sinus thrombosis, may be the result of an ascending degeneration secondary to constriction in the central retinal artery with ischemia of the retina, due either to arteritis or to irritation of the sympathetic plexus in the sinus.

Founder of British Dermatology.—Robert Willan (1757-1812) of London is the accepted founder of British dermatology, who marks the beginning of modern dermatology. In 1785 he presented a plan for the classification of skin diseases before the Medical Society of London, which five years later was given the Fothergillian medal; Jenner received the same medal a few years later.—Pusey, William Allen: The History of Dermatology, Springfield, Ill., Charles C Thomas, 1933.

NONSPECIFIC MAJOR OPERATIONS AND LUMBODORSAL SYMPATHECTOMY

A COMPARISON BETWEEN THEIR EFFECTS ON THE BLOOD PRESSURE

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The surgical treatment of hypertension by sympathetic resection has met many objections in the last few years. One of these concerns the specific value of sympathectomy in the reduction of blood pressure in the patients who have undergone operation.

In 1939 Volini and Flaxman [1] followed the course of the blood pressure of 17 hypertensive patients operated on for different reasons not related to their hypertension. They observed in almost every case a decided reduction of the blood pressure after the operation. They arrived at the conclusion that the blood pressure reduction attributed to nerve resection was actually due to the general conditions to which every patient who is operated on is subjected: bed rest, anesthesia, sedatives, operative shock and special diet. On these bases they denied the specific effect of sympathetic nerve resection on hypertension.

In September 1943 Adamson and Dubo [2] arrived at a similar conclusion. Following the course of the blood pressure of 58 hypertensive patients submitted to various major operations during eight to ten days after the operation was performed, they observed a reduction of the systolic blood pressure, which was, on the average, 29 per cent of the blood pressure prior to the operation. Comparing this figure with the 28 per cent of systolic blood pressure reduction reported by

TABLE 1.—*General Data*

Group 1. Nonspecific operations	
Number of cases	100
Males	13
Females	87
Mean age	50 years and 3 months
Group 2. Lumbodorsal sympathectomy	
Number of cases	100
Males	40
Females	60
Mean age	41 years and 3 months

TABLE 2.—*Immediate Effect of Operation*

	No Results	Moderate Reduction	Pronounced Reduction
Group 1. Immediate reduction (up to 6 months after the operation)			
Systolic pressure	49%	49%	2%
Diastolic pressure	60.3%	27.1%	12.6%
Group 2. Immediate reduction (10 days after the second stage of the operation)			
Systolic pressure	3.3%	24.4%	72.3%
Diastolic pressure	8.8%	37.7%	53.5%

Read before the New England Heart Association, Jan. 31, 1944.

1. Volini, I. F., and Flaxman, N.: Effect of Nonspecific Operations on Essential Hypertension, J. A. M. A. **112**: 2126-2128 (May 27) 1939.
2. Adamson, J. D., and Dubo, S.: The Effect of Surgical Operations on Blood Pressure, Canad. M. A. J. **49**: 161-166, 1943.

Crile [3] after celiac ganglionectomy, they concluded, as Volini and Flaxman had done, that the results of sympathetic operations are not specific and can be observed after any major operation.

With the purpose of checking these opinions, we have reviewed the records of hypertensive patients admitted to the Massachusetts General Hospital during the last ten years who were submitted to different major operations, in particular hysterectomy, mastectomy, gastrectomy and thyroidectomy. We have studied 100 cases in which the blood pressure readings were adequate for our purpose.

TABLE 3.—*Condition Six or More Months Later*

	No Results	Moderate Reduction	Pronounced Reduction
Group 1. Late reduction (more than 6 months after the operation; average period of observation, 10 months)			
Systolic pressure	82.7%	17.3%	0%
Diastolic pressure	86%	14%	0%
Group 2. Late reduction (more than 12 months after the second stage of the operation; average period of observation, 20 months)			
Systolic pressure	9.6%	28.1%	62.3%
Diastolic pressure	7.6%	36.1%	56.3%

On the other hand, we have studied the reduction of blood pressure in 100 hypersensitive patients submitted to bilateral lumbodorsal sympathectomy by the procedure of Smithwick,[4] performed in two stages but otherwise unselected. Some of these records were taken from the files of the Massachusetts General Hospital, and others from the private files of one of us (R. H. S.). The general data concerning the patients are summarized in table 1.

We have summarized in table 2 the immediate effect that the operations had in both groups. We have considered as "no results" reductions of less than 5 per cent of the initial systolic or diastolic blood pressure, "moderate" the reductions between 5 and 25 per cent and "pronounced" the reductions over 25 per cent of the blood pressure prior to the operation. As shown in table 2, even the immediate reduction of blood pressure is quite different in the nonspecific and the specific operation groups. Six or more months later this difference is still more evident, as summarized in table 3.

TABLE 4.—*Reduction of Blood Pressure After First Stage and After Second Stage of Lumbodorsal Sympathectomy*

	No Results	Moderate Reduction	Pronounced Reduction
Results 10 days after first stage of lumbodorsal sympathectomy			
Systolic pressure	30%	64%	6%
Diastolic pressure	42%	44%	14%
Results 10 days after second stage of lumbodorsal sympathectomy			
Systolic pressure	3.3%	24.4%	72.3%
Diastolic pressure	8.8%	37.7%	53.5%

We have also made a comparison of the reduction of blood pressure observed after the first stage with that after the second stage of lumbodorsal sympathectomy. The first stage of this operation can be considered like any major operation. It lasts one to one and a half hours and is performed under general anesthesia. If the sympathetic resection has no specific effects, there should be no reason for a difference between the two stages of the operation. We have summarized in table 4 the results of this comparison.

Observing the figures in table 4, it is reasonable to conclude that the blood pressure reduction obtained by the first stage of lumbodorsal sympathectomy is quite similar to that observed after any other operation. It is not until the second stage is performed that a real reduction of blood pressure is observed.

As a final indication of the specificity of the sympathetic operation, we have summarized in table 5 the blood pressure data of a certain number of patients who have had, in addition to the lumbodorsal sympathectomy, another operation performed before or in the interval between the two stages of the sympathectomy.

TABLE 5.—*Blood Pressure of Patients Who Had Another Operation Besides Lumbodorsal Sympathectomy*

Patient		Blood Pressure
1. M. G.	3/23/43	190/120
	Ovariectomy	
	3/24/43	.....
	4/ 7/43	200/ 90
	Lumbodorsal sympathectomy	
	6/21/43	.....
	7/10/43	150/ 90
2. M. B.	12/13/29	150/ 90
	Cholecystectomy	
	12/16/29	.....
	4/13/41	224/114
	Lumbodorsal sympathectomy	
	6/ 3/41	.....
	6/28/41	140/ 80
3. L. A.	11/ 4/42	240/160
	Right lumbodorsal sympathectomy	
	11/14/42	.....
	Cholecystectomy	
	11/28/42	210/110
	Left lumbodorsal sympathectomy	
	12/26/42	.....
	12/28/42	170/ 90
4. I. T.	8/26/43	200/110
	Thyroidectomy	
	8/27/43	.....
	8/29/43	180/ 90
	Lumbodorsal sympathectomy	
	9/25/43	.....
	10/14/43	130/ 90
5. N. M.	5/10/43	160/100
	Right lumbodorsal sympathectomy	
	5/13/43	.....
	Cholecystectomy	
	5/25/43	.....
	6/ 5/43	170/100
	Left lumbodorsal sympathectomy	
	6/19/43	.....
	7/13/43	120/ 80
6. M. L.	5/30/38	190/120
	Hysterectomy	
	6/ 8/38	.....
	9/18/38	186/120
	Lumbodorsal sympathectomy	
	10/ 5/38	.....
	10/15/38	140/100

SUMMARY AND CONCLUSIONS

This study has shown that nonspecific major operations, as studied in 100 patients, produce some immediate reduction of the blood pressure of hypertensive patients, as has been reported in previous papers. However, this reduction is not pronounced and in the great majority of cases persists for only a short time. On the contrary, lumbodorsal sympathectomy by Smithwick's technic, as studied in a second group of 100 cases, produces in the majority a pronounced reduction of

3. Crile, G.: Two Years' Results of Treatment of Essential Hypertension by Celiac Ganglionectomy, Cleveland Clin. Quart. **6**: 42-52, 1939.
4. Smithwick, R. H.: Technique for Splanchnic Resection for Hypertension: Preliminary Report, Surgery **7**: 1-8, 1940.

blood pressure which is still present after a considerable period of observation. The specificity of this operation is also demonstrated by the fact that definite results are not observed until after the second stage operation has been performed, the first stage producing about the same effect as any other major operation. Finally, the fact that in patients in whom major operations were performed in addition to lumbodorsal sympathectomy a pronounced and lasting reduction of blood pressure is not observed until the sympathetic resection is performed is further evidence of the fact that lumbodorsal sympathectomy has a specific effect in reducing blood pressure.

Massachusetts General Hospital.

INFECTIOUS HEPATITIS IN THE MIDDLE EAST

A CLINICAL REVIEW OF 200 CASES SEEN IN A MILITARY HOSPITAL

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Within the past two or three years infectious hepatitis has become recognized as an epidemic disease of increasing military importance.[1] Its prevalence among British troops in the Middle East has been high,[2] but it has not been limited to British forces or to that particular geographic area, for this disease has occurred in the armies of other allied nations; in the French army in Tunisia,[3] in the Italian army in Sicily in 1941 [4] and in the German army [5] as well as in the civilian population of Palestine.[6] Outbreaks of what may be the same disease have also occurred in the civilian population of Scandinavia,[7] England [8] and America,[9] but in the absence of diagnostic tests the relationship of infectious jaundice to so-called catarrhal jaundice [10] as well as to various types of "epidemic jaundice" (with the exceptions of yellow fever and Weil's disease) is not clear.[11] Furthermore, the question has arisen as to whether the types of hepatitis following the inoculation of human serum [12] (icterogenic serum) and yellow fever vaccine [13] are the same and thus represent artificial examples of infectious hepatitis. In view of these obscurities, it will not be the function of this paper to review the literature or to consider the pathogenesis and epidemiology of infectious hepatitis. My object in the present report has been to assemble data on the clinical picture of this disease as seen in a group of patients diagnosed as having infectious hepatitis (and infectious cholangitis) at an American military hospital in the Middle East during the years of 1942 and 1943.

CLINICAL MATERIAL AND METHODS

The patients described in this paper had contracted their disease in various sections of the Middle East, North Africa and the eastern Mediterranean area including Sicily and Italy. In these areas the disease had been endemic in British and American troops throughout the year, but there was a sharp rise in prevalence beginning in late October and receding during the winter months. Actual dates of admission to the hospital by months appear in chart 1.

For the clinical analyses the pertinent data were assembled from 200 hospital case histories on a master chart. All histories were included from patients on whom the diagnosis of infectious hepatitis (or infectious cholangitis) was made during the period of Nov. 11, 1942 to Feb. 1, 1944. For purposes of convenience and clarity of description the clinical course of the disease was divided when possible into two phases: the preicteric phase, starting with the onset of symptoms, and the icteric phase, starting with the time when the patient first noticed that his urine was dark and terminating when the serum icterus index reached approximately normal levels.

A definite preicteric phase was presented by 167 (83.5 per cent) of 200 patients, while the remaining 33 patients (16.5 per cent) presented jaundice as the first complaint without any preceding symptoms. The latter group was included in the description of the icteric phase. All patients were men of an average age of 25.5 years, ranging individually from 19 to 52 years, although there were only 3 who were older than 40 years of age.

From the Medical Division, General Hospital.

Assistance in the collection of clinical material was given by the following medical officers: Lieut. Col. Robert B. Nye, M. C.; Major Edgar Dessen, M. C.; Capt. Edward Tallant, M. C.; Capt. Albert Maisel, M. C., and Capt. John Stone, M. C.

This work was carried out under the direction of the Commission on Neurotropic Virus Diseases of the Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, Preventive Medicine Service, Office of the Surgeon General, U. S. Army.

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CLINICAL COURSE OF THE DISEASE

In chart 2 a diagram has been composed to show the clinical picture of a typical average case of the disease which is to be described in this paper. The preicteric phase, when present, ranged in length from one to eighteen days, with an average of five days, and manifested all grades of severity from the mildly sick to the severely prostrated patient.

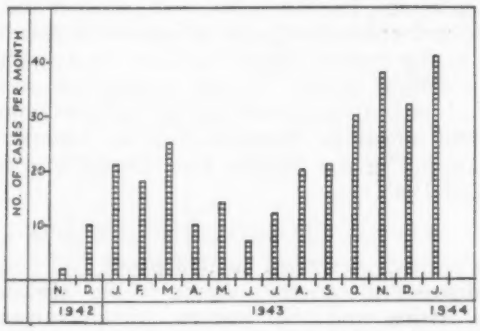

Chart 1.—Seasonal variation in the admission rate of American troops with infectious hepatitis to an American general hospital in the Middle East from Nov. 11, 1942 to Feb. 1, 1944.

The most common symptom in the preicteric phase of the disease was anorexia, which began insidiously and which was usually the first complaint. This early loss of appetite was particularly noticeable in the field, where rations were monotonous, and such early aversion to food was often observed by the group medical officer as beginning evidence of disease before the patient felt actually sick. Nausea soon became evident after meals, and although vomiting was less common it frequently occurred later in the preicteric phase just before the onset of jaundice. In the ensuing few days many men complained of weakness and described it as lack of energy to perform duty and disinterest in work. Members of the Air Force in particular noted lack of interest in flying. Upper abdominal discomfort developed early and was reported as a sense of fulness and aching in the epigastrium and right upper quadrant, particularly evident after eating and occasionally associated with flatulence. Activity or jolting the body usually intensified this discomfort. Occasional patients complained of a sense of tightness and a dragging sensation in the left upper quadrant. Palpation of the upper abdomen in these cases in the preicteric phase frequently elicited tenderness, although rarely was the liver or spleen palpable. Disorders of bowel function were not common; constipation occurred more frequently than diarrhea.

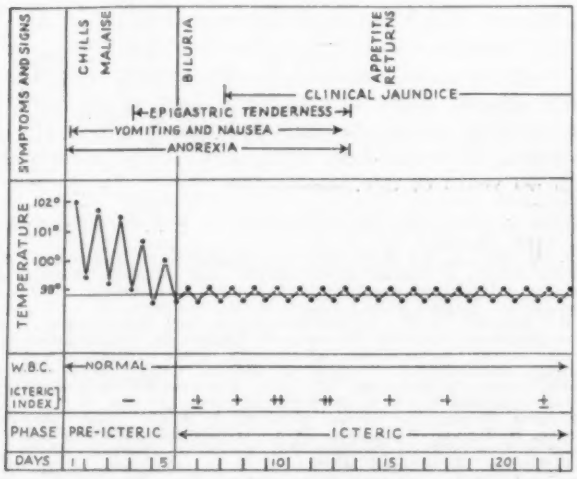

Chart 2.—Course of disease obtained from the averaged assembled data in 200 cases of infectious hepatitis.

In approximately one half of the 167 patients manifesting a preicteric phase, the onset was sudden with frank chill or chilliness, fever, malaise, headache and generalized aches and pains. In general the temperature was remittent, with a daily peak of 102 F. declining gradually to normal in the course of five days, although not infrequently daily chill with elevation of temperature to 103-104 F., followed by return to normal, was encountered during the first two to three days (chart 2). These patients were often prostrated and complained of aching eyes and occasionally pain on motion of the eyeballs. A certain number of patients had evidence of inflammation of the upper respiratory tract coincident with the onset of disease. As in the afebrile cases, anorexia, nausea, vomiting and upper abdominal distress developed early in the course of disease. Clinical jaundice appeared twenty-four to forty-eight hours after the temperature reached normal.

TABLE 1.—*Preicteric Phase*

Total number of patients	167
Average duration in days	4.89

	No. of Patients	Percentage
Malaise	138	82
Anorexia	138	82
Nausea	126	75
Weakness	126	75
Aches and pains	90	53
Fever	90	53
Chills	87	52
Upper abdominal distress	73	42
Headache	59	35
Vomiting	55	33
Constipation	32	19
Upper respiratory disease	29	17
Flatulence	24	14
Diarrhea	16	9
Frequency	7	4
Itching	4	2

Such patients constituted problems in differential diagnosis, and they were usually admitted with the diagnosis of fever of unknown origin. Malaria and, during the early Autumn, sandfly fever were the two diseases most frequently considered. The repeated chills with high fever associated with nausea and vomiting suggested malaria, while the headache, pain in the eyes and discomfort in the eyeballs on motion associated with pyrexia simulated sandfly fever. In such a clinical picture the presence of anorexia was a most important guide to the diagnosis of infectious hepatitis. Later in the preicteric state tenderness over the liver and the appearance of bile in the urine established the diagnosis. The importance of biliuria cannot be overemphasized, and daily gross examination of the urine by the medical officer himself for bile did much to establish early diagnosis before clinical jaundice was evident.

An analysis of symptoms in order of their importance appears in table 1.

The icteric phase varied in severity and length from four to eighty-three days, with an average duration of twenty-seven days. Other patients have been observed, however, in whom jaundice lasted one hundred and twenty days (chart 3).

The presence of bile in the urine was the earliest and most frequent sign of developing icterus and usually

preceded the appearance of clinical jaundice by forty-eight to seventy-two hours.

Fever was almost always absent in this phase. Anorexia, nausea, vomiting and epigastric discomfort persisted for two to thirty days in varying degrees of severity, with an average duration of nine to ten days. In the mildest cases these symptoms were slight. However, in the severely sick patients symptoms at times persisted as long as a month. As the jaundice increased the pigment diminished in the stools, and acholic stools commonly occurred in the sicker patients. Constipation was often associated with this and diarrhea occasionally. Such general cholemic symptoms as lassitude, mental irritability and depression were present in a small number of patients. Itching was not common, but at times it was intractable. Occasional patients were seen with severe lacerations of the skin due to scratching. Bradycardia was uncommon and appeared in the first two weeks of jaundice, lasting from five to twelve days but averaging seven days in duration. However, a pulse rate of 60 to 70 was common throughout the period of jaundice when patients were at rest.

Physical examination revealed enlargement of the liver in 58.5 per cent of patients by the time jaundice

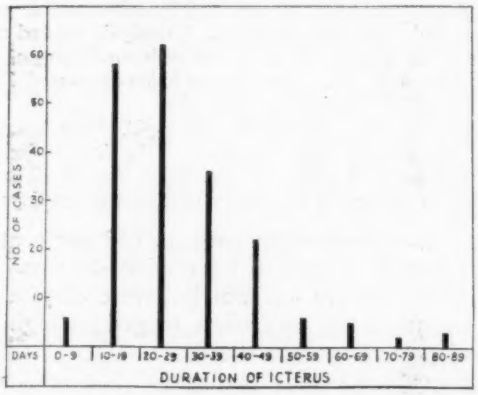

Chart 3.—Duration of icterus (in ten day periods) in 200 patients with infectious hepatitis.

was evident. The edge of the liver was firm and palpable 1 to 2 fingerbreadths below the costal border. While enlargement and tenderness of the liver did not always coincide, both were present in 43 per cent of patients. In general, tenderness subsided in nine to ten days, although it occasionally persisted as long as three weeks. Enlargement of the liver lasted from seven to thirty-three days, with an average duration of twelve days. Epigastric tenderness and distention were often associated, and clinical evidence of pylorospasm with dilatation of the stomach was occasionally present. Vomiting of copious quantities of undigested food and liquids afforded temporary relief. Enlargement and tenderness of the spleen occurred in a small number of patients. These signs and symptoms ordinarily persisted for seven to fifteen days after the appearance of jaundice, diminishing rapidly after the icterus reached its height. Continuation of epigastric discomfort and tender enlarged liver were regarded as signs of persistence of activity of disease.

It has been previously pointed out that mild forms of this disease without clinically evident icterus have occurred among outbreaks of frank jaundice.[14]

14. Cameron, J. D. S.: Infective Hepatitis, Quart. J. Med. **12**: 139 (July) 1943.

Occasional patients[6] in this series had such mild disease that clinical jaundice was never evident. The presence of the characteristic symptoms with mild tenderness in the right upper quadrant and epigastrium, bile in the urine and elevation of the serum icterus index as high as 12 to 18 units, occurring in patients from groups in which infectious hepatitis was present, suggested the diagnosis of infectious hepatitis without clinical jaundice.

TABLE 2.—*Icteric Phase*

Number of patients	200	
Average duration in days	27.07	
Symptoms:	No. of Patients	Percentage
Malaise	165	82.5
Anorexia	162	81
Nausea	145	72.5
Epigastric discomfort	89	44.5
Vomiting	69	34.5
Itching	34	12
Signs:		
Enlarged liver	117	58.5
Tender liver	108	54
Enlarged and tender liver	86	43
Enlarged spleen	21	10.5
Tender spleen	5	2.5
Enlarged spleen and liver	13	6.5
Bradycardia	16	8.8

An analysis of signs and symptoms of the icteric phase in order of their importance appears in table 2.

After the icterus reached its height, which generally occurred by the tenth day of jaundice, the symptoms regressed and a sense of well-being returned. Pigment reappeared in the stool in increasing amounts. By this time it was not uncommon for patients to have lost 5 to 10 pounds (2.3 to 4.5 Kg.) and many of them had a ravenous appetite. Strength returned rather quickly in the mild and moderately sick patients. It was observed, however, that activity not uncommonly caused a sense of fulness and discomfort in the abdomen for several days after the patient felt well otherwise. Jaundice faded slowly and patients were kept in the hospital until their icterus index was normal. Most of those who had had mild or moderately severe disease were fit for duty at this time, but those who had been severely sick often required ten days' sick leave. Hospitalization of the entire group ranged from seven to eighty-seven days, with an average length of 29.8 days.

Occasionally the course of disease was more severe in the older patients and recuperation more prolonged. In an effort to correlate the severity and duration of jaundice with the age of the patient it was shown that the greater number, 167 (73.5 per cent), fell in the decade between 19 and 29. The remaining 33 patients (26.5 per cent) were between 30 and 39 years of age with the exception of 3 (48, 51 and 52 respectively).

TABLE 3.—*Relation of Age to Duration of Jaundice*

	Average Days of Jaundice
200 patients of series	27.07
167 patients (19 to 29 years old)	26
33 patients (30 to 52 years old)	32.1

Table 3 shows the relation of age to duration of jaundice.

Complications.—The only complication observed in this series was seborrheic dermatitis, which occurred in many patients during the icteric phase. Ascites was not observed in any patient.

Relapse.—Of 200 patients in this series 3 had a relapse during their course of disease, manifest by an increase in jaundice and exacerbation of symptoms but without fever. The average duration of jaundice in these patients including the relapse was forty-nine days, with an individual variation from forty-three to fifty-eight days. Other patients have been observed who have had fever associated with the onset of a relapse.

It was difficult to associate the occurrence of a relapse with anything in particular. One of the aforementioned patients had received 122 Gm. of sulfaguanidine for bacillary dysentery early in the course of jaundice, given four weeks before the occurrence of the relapse. Another patient not included in this group had a secondary rise in the icterus index after receiving carbarsone in the treatment of amebiasis found incidentally during the course of jaundice.

In individual cases it seemed at times as though overexposure or excessive activity induced an increase in jaundice; however, such occurrences also took place without preceding overactivity and did not appear to be related to any specific stimulus.

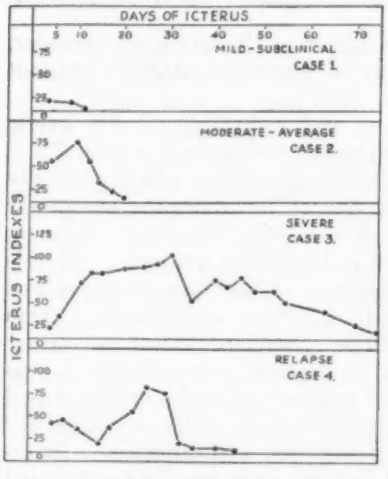

Chart 4.—Levels and trends of jaundice as measured by serum icterus index determination in a mild, moderate and severe case of infectious hepatitis and in a case with relapse.

Antisyphilitic Therapy.—It is already recognized that the prevalence of infectious hepatitis is far higher in patients undergoing antisyphilitic therapy.[15] In this group 6 patients had received antisyphilitic therapy in the form of neoarsphenamine, maph-arsen or bismuth within three months before onset of jaundice. In these patients the average period of jaundice was prolonged over the usual to 39.8 days, with individual variations ranging from twelve to eighty days.

Recurrence.—No patients were encountered who had acquired this disease twice in the Middle East.

Postvaccinal Hepatitis.—Two patients of this series had had postvaccinal hepatitis following the administration of yellow fever vaccine one year before the onset of infectious hepatitis. Their course of disease was similar to that of the average case.

Course of Icterus.—Frequent serial determinations of the serum icterus index throughout the course of disease has demonstrated that the maximum peak of jaundice was reached within the first ten days after appearance in 80 per cent of patients. The remaining patients reached their high point during the ensuing four to five days, with the exception of a few patients who had gradually increasing icterus lasting as long as thirty-one days before the peak was reached.

Curves drawn to show the severity and duration of jaundice revealed considerable variation. These variations (based on tests for 180 patients) have been divided into four groups according to the duration of jaundice (chart 4).

Group 1.—Sixty-four patients (32 per cent) had jaundice varying from four to nineteen days and constituted examples of mild disease. While the serum icterus index in some of these patients reached as high as 60 units, a few had jaundice of such slight degree that it was not demonstrable clinically.

Case 1 represents a mild case of infectious hepatitis in which jaundice was not evident clinically and its detection was dependent on the icterus index determination and the presence of bile in the urine:

An enlisted white man aged 24 was admitted to the hospital with the chief complaint of nausea, vomiting and diarrhea. The patient was well developed and nourished and was dehydrated. His temperature was 99 F., pulse rate 80 and respiratory rate 20. No icterus was evident. The heart and lungs were normal. There was slight tenderness in the right lower quadrant. The liver and spleen were not felt. On the third day of disease the leukocytes numbered 7,700, with 65 per cent polymorphonuclear cells, 32 per cent lymphocytes, 1 per cent monocytes and 2 per cent basophils. Urinalysis showed albumin 1 plus and bile present in the urine with urobilinogen positive in a dilution of 1:200. The icterus index measured 18 units. The blood Kahn reaction was negative.

His recovery was uneventful and rapid. The nausea and vomiting disappeared after five days. The icterus index was at its maximum, 18 units, on the third day of disease and diminished to normal in the course of the next ten days.

Group 2.—Ninety-eight patients (49 per cent) had jaundice lasting twenty to thirty-nine days and made up the group having moderately severe disease. The serum icterus index very often ranged as high as 80 to 90 units.

Case 2.—A medical officer aged 22 was admitted on Jan. 26, 1943 with the chief complaint of dark urine of four days' duration. Eight days before admission he had a sudden onset with chills, fever and anorexia, generalized aches and pains, with headache and pain in the eyes on motion. Clinical jaundice became evident two days before admission.

The patient was well developed and nourished. He was jaundiced but did not appear sick. His temperature was 98.6 F., pulse rate 88 and respiratory rate 18. Examination was essentially negative except that the liver was tender and palpable 1 fingerbreadth below the costal border. The erythrocytes numbered 4,240,000, hemoglobin was 85 per cent and leukocytes numbered 4,650, with 65 per cent polymorphonuclear cells, 20 per cent lymphocytes, 8 per cent monocytes and 1 per cent basophils. The serum icterus index measured 54 units. The blood Kahn reaction was negative. Urinalysis revealed bile and albumin 3 plus. The icterus index reached its height of 72 units on the tenth day of the disease and receded over the next eleven days to normal. Anorexia and tenderness of the liver subsided shortly after the jaundice reached its height, and recovery was uneventful.

Group 3.—Thirty-eight patients (19 per cent) had jaundice lasting from forty to eighty-three days, constituting the group with severe disease. The icterus index was as high as 149 units in an occasional patient.

Case 3 represented a severe case of infectious hepatitis, prolonged over a period of eighty-three days:

Case 3.—An enlisted man aged 22 was admitted to the hospital Aug. 15, 1943 with the chief complaint of dark urine for three days. Three days before admission he had been feverish and had generalized aches and pains, profuse sweats, anorexia

15. Marshall, J.: Jaundice in Syphilitics (Coincidence of Increase of Infective Hepatitis), Brit. J. Ven. Dis. **19**: 52-58 (June) 1943. Ruge, R.: Die akute Leberatrophie und ihre Beziehung zu Syphilis und Salvarsan nach den in der Marine von 1920-1925 beobachteten Fällen, Arch. f. Dermat. u. Syph. **153**: 518, 1927; Die Zusammenhänge zwischen Syphilis, Salvarsan, und der sog. katarrhalischen Gelbsucht auf Grund von 2500 in der Marine von 1919-1929 beobachteten Fällen, Dermat. Wchnschr. **94**: 278 (Feb. 20) 1932. Anderson, T. F.: Jaundice in Syphilitics, Brit. J. Ven. Dis. **19**: 58-67 (June) 1943. Mitchell, H. S.: Incidence Compared with Jaundice Following Arsenotherapy for Syphilis, Canad. M. A. J. **48**: 94-96 (Feb.) 1943.

and constipation. He continued to feel bad and the day before admission had generalized abdominal pain, with nausea and vomiting.

The patient was well developed but dehydrated. He was not in acute distress. His temperature was 98.6 F., pulse rate 80 and respiratory rate 20. There was a faint icteric tint to the scleras. The heart and lungs were normal. There was generalized abdominal tenderness, and the liver was palpable 1 fingerbreadth below the costal border. The leukocytes numbered 8,200, with 77 per cent polymorphonuclear leukocytes, 18 per cent lymphocytes and 5 per cent monocytes. Urinalysis showed albumin 2 plus. The serum icterus index measured 22 units. The blood Kahn reaction was negative. During the ensuing thirty days the icterus index ascended gradually to its maximum 102. During much of this time the patient was prostrated with anorexia, nausea and intermittent vomiting. Mental irritability was present and he lost approximately 12 pounds (5.4 Kg.).

Following the peak of jaundice came a slow decline of icterus over the subsequent fifty-three days. Return of appetite came slowly after the jaundice began to decline. Recovery was apparently complete and the patient was discharged after eighty-three days of hospitalization.

GROUP 4.—Relapse was a rare occurrence, being present in only 3 of 200 patients.

Case 4 represented a moderately severe case of infectious hepatitis with relapse:

CASE 4.—An enlisted man aged 24 was admitted to the hospital Nov. 7, 1943 with the chief complaints of nausea, anorexia and flatulence for eight days. His urine had been dark for five days.

The patient was well developed and nourished. His temperature was 97.4 F., pulse rate 80 and respiratory rate 20. The scleras were mildly icteric. The heart and lungs were normal, and the liver and spleen were not palpable. The leukocytes numbered 6,200, with 68 per cent polymorphonuclear cells, 28 per cent lymphocytes and 4 per cent monocytes. Urinalysis revealed bile. The serum icterus index measured 41 units, and 75 per cent bromosulphalein dye was retained in the blood after thirty minutes. The blood Kahn reaction was negative.

The icterus index reached its high point of 44 units on the eighth day of jaundice and then diminished over the ensuing week to 19 units. The patient's symptoms of anorexia and nausea had ameliorated. On the seventeenth day of jaundice, however, he began to feel worse with anorexia, nausea and discomfort in the epigastrium and right upper quadrant. The jaundice began to increase again and reached a maximum of 85 units on the twenty-sixth day of jaundice, from which point it descended over the ensuing three weeks to normal. His symptoms improved rapidly as the jaundice declined.

Nothing definite could be found which might have precipitated this relapse.

LABORATORY STUDIES

1. *Blood Counts.*—Complete blood counts were done on 183 patients at varying stages of the disease. The erythrocytes averaged 4,500,000 and the hemoglobin 85 per cent (Sahli). Total leukocyte counts were within normal limits, with rare deviations from 4,500 to 10,200 and averaging 6,200. Relatively few leukocyte counts were performed in the preicteric phase, but those done were essentially normal. A slight increase in monocytes was observed in several patients during the first ten days of the icteric phase, with individual counts as high as 14 per cent, although the average in the icteric phase was 5.2 per cent. In general there was nothing distinctive or diagnostic.

2. *Coagulation and Bleeding Time.*—The coagulation and bleeding time of the blood and erythrocyte fragility were measured in 38 and 42 patients respectively and were found to be normal.

3. *Icterus Index.*—The serum icterus index of 180 patients was measured. The reading of 10 units was selected as the upper limit of normal, and any measurements over this were considered to be indications of icterus. Determinations at various times throughout the course of disease in 180 patients varied from 10 to 149 units. In occasional patients the serum icterus index was only slightly elevated above normal from 12 to 18 units when clinical icterus was at times impossible to detect. In many patients in whom the jaundice disappeared slowly at the end of the disease the icterus index was useful in determining whether subclinical jaundice was still present. Although the serum icterus index is less delicate than the serum bilirubin determination as a test of the excretory function of the liver, it proved a practical test under conditions in which more elaborate laboratory facilities were not available at all times.

Serum Bilirubin.—Qualitative and quantitative van den Bergh determinations were made on the serum of 60 patients in various stages of jaundice. The qualitative van den Bergh was positive direct in all but 3 patients; many of these determinations were made within the first five days of jaundice. Two negative direct and one biphasic reaction were encountered in patients with a serum bilirubin measuring around 1.5 mg., occurring either at the beginning or at the termination of jaundice.

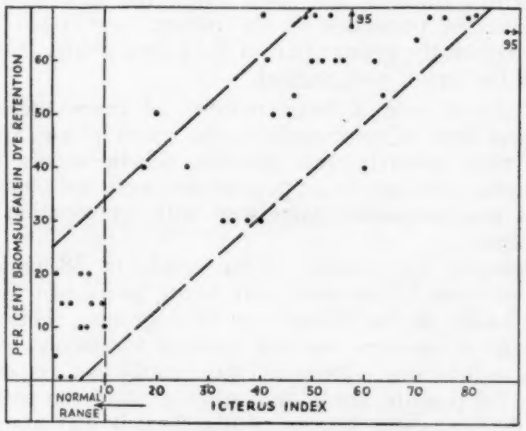

Chart 5.—Correlation between height of serum icterus index and percentage of bromsulphalein dye retained in the blood thirty minutes after intravenous injection of 15.15 mg. per 55 pounds (25 Kg.) of body weight. The two determinations were made in blood drawn the same day.

The serum bilirubin determinations in this group of 60 patients ranged as high as 10.8 mg. Although a more delicate test of liver function than the icterus index determination, the inability to have available constantly the materials necessary for the performance of the test limited its usefulness under the conditions of military hospitalization.

4. *Liver Function Tests.*—As a further test of the excretory function of the liver the bromsulphalein dye retention test was used. In patients with infectious hepatitis it was found that the more pronounced jaundice the greater the amount of dye was retained in the blood, indicating the degree of severity of impairment of the function of the liver.

An effort was made to correlate the amount of bromsulphalein dye retained in the blood after thirty minutes with the height of the icterus index. Simultaneous determinations were made on 48 patients on various days ranging from the second to the thirty-second day. Patients whose icterus index was 20 or below showed little evidence of impairment of bromsulphalein dye

excretion, most of the figures ranging between 5 per cent and 15 per cent of dye retained in the blood (chart 5). As the icterus index rose, however, the retention of dye in the blood increased proportionately, so that in general the higher the icterus index the greater the amount of dye retained in the blood, up to 75 per cent dye retention. Although several patients had an icterus index ranging from 60 to 96 units, only 1 showed more than 75 per cent retention of bromsulphalein in the blood.

5. *Blood Kahn Reaction.*—Kahn tests were performed on 180 patients in various stages of the disease in both preicteric and icteric phases. One patient had a 2 plus reaction on the sixteenth and twenty-fifth days of disease. No history of venereal exposure was elicited and it was thought that the positive reaction was related to the acute infection. Subsequent tests were advised, but we were unable to follow the patient.

6. *Urinalysis.*—Of 184 patients on whom urinalysis was performed 72 (39 per cent) had albumin early in the course of disease, frequently in the preicteric phase. Increased urobilinogen in the urine was found to be a good diagnostic measure before clinical jaundice was evident. Biliuria was most often the first evidence of jaundice presented by the patient, and it persisted throughout the greater part of the icteric phase. Otherwise the urine was normal.

7. *Stools.*—In a large number of cases the stool became light in color early in the icteric phase, and in the more severely sick patients acholic stools were common, although exact percentages were not obtained. This was frequently associated with constipation and flatulence.

Cultures were made of the stools of 58 patients, and of those 12 per cent were found to contain dysentery bacilli of the Flexner or Hiss group. This percentage of carriers was not unusual for troops in the area at this time. Diarrhea was usually not associated with the positive stools and, since most of the patients had had previous history of diarrhea, it was assumed that they were carriers. They were treated with sulfaguanidine in therapeutic doses.

THERAPY

The treatment of this disease was symptomatic. It was entirely possible for those patients with subclinical jaundice or very mild disease to remain ambulatory, but for the sicker patients hospitalization with bed rest was indicated during the acute phase, since activity apparently aggravated the symptoms of even the mildly sick when they were obliged to live under field conditions. As recovery took place and jaundice waned, increasing activity according to the tolerance of the individual patient was advised. Chilling and excessive activity were avoided.

Full, unrestricted diet was given as soon as the patient could tolerate it. Supplementary vitamins were added, although their utilization and value were undetermined. Early in the course of disease when anorexia, nausea and upper abdominal discomfort were present, difficulty was encountered in providing adequate food intake. Diet rich in proteins and carbohydrate was given. No advantage was demonstrated for excessive intake of carbohydrates except that it provided for some patients a more palatable way of increasing their amount of food eaten. Fats were not withheld unless the patient was unable to tolerate them. This occurred at times when bile was completely absent from the gastrointestinal tract. Frequent small feedings were better tolerated than large meals at longer intervals.

Duodenal drainage was performed on 90 of the 200 patients as a "therapeutic" measure. The average duration of jaundice in all patients was twenty-seven days. In the 110 patients who did not have biliary drainage the average period of jaundice was 23.8 days, while in the 90 patients who had biliary drainage performed the average period of jaundice was thirty-one days. No reason could be found to account for this discrepancy. There was no selection of cases according to severity. Sixty per cent of the drainages were done within the first ten days of jaundice when most of the patients were reaching their maximum icterus. It is of interest to note that in most cases in which drainage was performed during the height of jaundice no B (dark) bile was obtained. It is impossible to draw any inference from these data to indicate that biliary drainage had any beneficial effect. No opinion can be given as to whether it had any effect on prolonging the jaundice.

Constipation was relieved by the administration of ½ to 1 ounce (15 to 30 Gm.) of crystalline sodium sulfate in warm water each morning before breakfast. Many patients stated that this afforded relief of the sense of fulness and epigastric oppression.

Anorexia, nausea and vomiting were ameliorated at times by giving 0.0325 Gm. of phenobarbital three times daily, but intractable vomiting at times required the administration of parenteral fluids in the form of 2,000 to 3,000 cc. of 5 per cent dextrose in isotonic solution of sodium chloride intravenously.

Upper abdominal distress was severe enough at times to require codeine sulfate 0.065 Gm., but frequently the application of local heat was of benefit.

Itching was relieved by the administration of 0.0325 Gm. of phenobarbital three times daily, and for more severe cases the local application of calamine lotion containing 1 per cent phenol afforded relief.

Sulfonamides.—Seven patients in this group of 200 patients received sulfonamides in full therapeutic dosages. Six of them had sulfaguanidine for dysentery and 1 sulfathiazole for chancroid. To all patients the drug was given early in the course of jaundice. One patient had a relapse of jaundice about four weeks after the cessation of sulfaguanidine. However, the course of jaundice in this group of seven averaged twenty-three days, with individual variations ranging from twelve to forty-six days, so that no evidence was available from this small number that sulfonamides were detrimental.

SUMMARY

Infectious hepatitis has assumed epidemic proportions in British, Italian, German, French and American troops during the past two to three years in the Middle East, with a sharp seasonal prevalence beginning in late October and reaching a peak in late January.

The clinical picture of the disease among 200 American troops admitted to an American General Hospital in the Middle East was found to be similar to that described by British observers.

An acute onset initiated a clearly defined preicteric period of five days characterized by anorexia, chilliness, fever, headache, nausea, vomiting, upper abdominal discomfort and generalized aches and pains.

This phase was terminated by the decline of fever and the appearance of dark urine, which marked the onset of the icteric phase. Anorexia, nausea, vomiting and epigastric distress were associated with hepatic

enlargement and tenderness during the first ten days of jaundice; at the end of this period the icterus usually diminished and the signs and symptoms regressed. Recovery was uneventful in practically every case. Only 3 patients had relapse, and no associated etiologic factor could be determined in these cases. The average duration of jaundice was twenty-seven days, and patients over 30 years of age averaged five days more in duration of icterus. Patients who received antisyphilitic therapy within three months before the onset of disease had their jaundice prolonged twelve days more than the average. A few patients received sulfonamide, and no effect could be observed on the jaundice.

Individual patients manifested all degrees of severity of disease, ranging from the mild case with subclinical jaundice in which icterus was detected only by examination of the urine and blood serum to the severely prostrated patient with deep jaundice prolonged over a period of eighty-three days. Eighty-one per cent of patients had mild to moderately severe disease, while 19 per cent had severe jaundice.

Laboratory studies revealed that blood counts, coagulation and bleeding time and erythrocyte fragility tests were normal. The serum icterus index was used as a measurement of icterus and was found to be valuable both alone and in conjunction with the bromsulphalein dye retention test. It was found that the percentage of dye retained in the blood was in direct proportion to the height of the icterus index. The blood Kahn tests were negative in all but 1 patient.

Urinalysis gave the most important early clue to diagnosis, and the occurrence of biliuria cannot be stressed enough as an important diagnostic measure. Albuminuria was present in a goodly percentage of patients.

Duodenal drainage was performed on a large number of patients early in the course of jaundice and failed to shorten the disease.

Pigment disappeared from the stools of a large number of the patients as the icterus approached its height and, in the severely sick, acholic stools were common.

CONCLUSIONS

1. Data from 200 cases of infectious hepatitis in American troops occurring between Nov. 11, 1942 and Feb. 1, 1944 in the Middle East were assembled and analyzed.

2. The course of disease in these troops simulated the clinical descriptions of British observers.

3. Because of prolonged hospitalization (average 28.8 days) infectious hepatitis constitutes a problem of military importance.

4. The most important simple laboratory procedure in diagnosis was examination of the urine for bile at the bedside of the patient by the medical officer.

5. The serum icterus index determination afforded a simple, effective method of following the course of jaundice and demonstrating subclinical icterus under the circumstances of military hospitalization.

Fuel Requirement of Man.—The energy requirement of a person for twenty-four hours or for a shorter period, expressed in calories, can be determined with a high degree of accuracy. This figure is the sum of (*a*) the basal metabolism, (*b*) the energy liberated in exercise or work and (*c*) the increment of energy due to the specific dynamic action of food, the so-called cost of digestion.—McLester, James S.: Nutrition and Diet in Health and Disease, Philadelphia, W. B. Saunders Company, 1943.

EFFECT OF INTRAVENOUS FLUIDS ON DEHYDRATED PATIENTS AND ON NORMAL SUBJECTS

CARDIAC OUTPUT, STROKE VOLUME, PULSE RATE AND BLOOD PRESSURE

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Dehydration is frequently encountered in both medical and surgical patients. Whether dehydration is the result of vomiting, diarrhea, inability to swallow or electrolyte derangement such as occurs in diabetic acidosis,[1] the intravenous administration of fluids is the mode of therapy usually relied on to restore the normal state of hydration and electrolyte balance. Indeed, so routinely and with such gratifying results are intravenous fluids used for these patients that the physician seldom pauses to consider the exact effect of his therapy

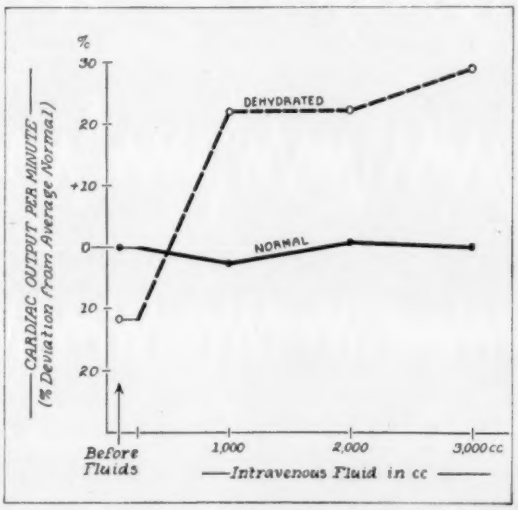

Fig. 1.—The cardiac output of the normal subjects has been averaged and is compared graphically with the average of the dehydrated patients, before and after intravenous fluid administration.

on the cardiovascular system. Previous reports in the literature have dealt with the effect of intravenous infusions on pulse rate, blood pressure, blood volume, venous pressure, velocity of blood flow and the electrocardiogram.[2] Altschule and Gilligan[3] have also reported the changes in cardiac output in normal men. However, no workers, so far as we are aware, have studied the effect of intravenous fluids on cardiac output in dehydrated patients as compared with the effect on normal subjects. For this reason, two such groups have been investigated and the results are reported here. Except in 1 instance, in which no blood chemistry determinations were done, no patient was considered

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This study was made at the suggestion of Dr. Isaac Starr, who permitted us to use his laboratory and showed us numerous other kindnesses.

1. McCance, R. A.: Medical Problems in Mineral Metabolism: II. Sodium Deficiencies in Clinical Medicine, Lancet **1**: 704, 1936.

2. Bainbridge, F. A.: The Influence of Venous Filling on the Rate of the Heart, J. Physiol. **50**: 65, 1915. Kahn, M. H.: The Influence of Venous Filling on the Heart, Ann. Int. Med. **3**: 969, 1930. Gilligan, D. R.; Altschule, M. D., and Volk, M. C.: The Effects on the Cardiovascular System of Fluids Administered Intravenously in Man: II. Studies of the Amount and Duration of Changes in Blood Volume, J. Clin. Investigation **17**: 7, 1938. Altschule and Gilligan.[3]

3. Altschule, M. D., and Gilligan, D. R.: The Effects on the Cardiovascular System of Fluids Administered Intravenously in Man: II. The Dynamics of the Circulation, J. Clin. Investigation **17**: 401, 1938.

dehydrated who did not present abnormal blood chemistry values as outlined in the table. The dehydrated individuals experienced a pronounced increase in cardiac output after the infusions, while the normal subjects presented little or no such rise.

CLINICAL MATERIAL

The patients were examined as soon as possible after reaching the hospital, and when dehydration was found to exist the subject was taken on a litter directly to the ballistocardiograph, having no treatment prior to the test. Blood was drawn for determinations of serum protein, serum chloride and blood urea nitrogen. The diagnoses of the dehydrated subjects are listed in the table. The control group consisted of the authors, of subject J. M., tested first just after admission when he was dehydrated, who volunteered to repeat the test

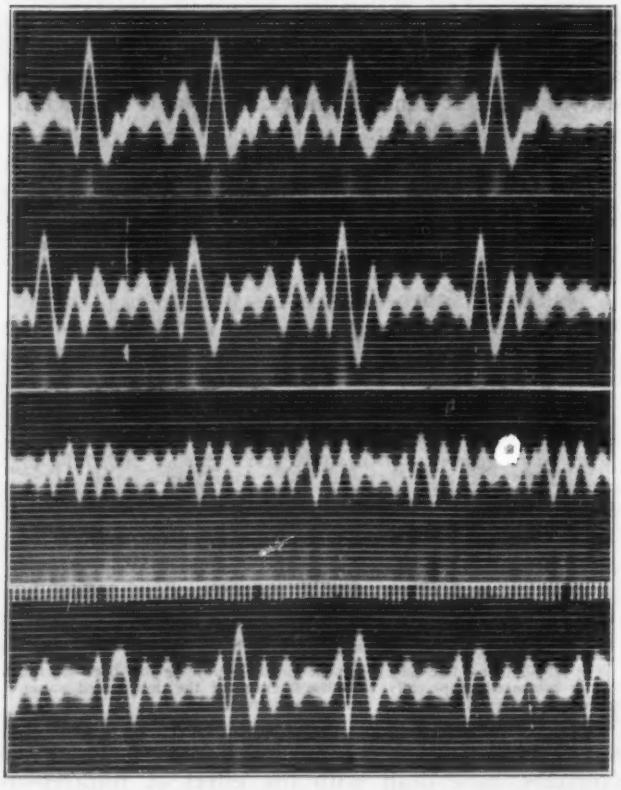

Fig. 2.—Typical ballistocardiographic tracings of a normal subject before and after intravenous fluid administration are compared with those of a dehydrated patient. Top subject, L. G. before fluids. Second, L. G. after 3,000 cc. of intravenous fluid. Third patient, J. M. before fluids. Fourth patient, J. M. after 3,000 cc. of intravenous fluid. The time record applies to all tracings. Largest interval equals one second.

fifteen days later when all evidence of dehydration had disappeared, and of 3 patients normal from the point of view of this study but to whom it was necessary to give fluid intravenously. The blood chemistry values for this group are recorded in the table; all were within the normal range.

TECHNIC

The intravenous fluids were given with the subject lying on the ballistocardiograph table,[4] so that measurements of cardiac output could be made at will. The ballistocardiograph consists essentially of a table suspended by wires and free to move in a lengthwise direction only, of an optical system attached to the table which magnifies its movements by the deflections of a beam of light, and of a camera which photographs the movements of the beam of light. When the patient lies lengthwise on the table, the recoil of his body downward when ejection of blood from the heart commences, followed by a movement upward when the blood is turned by the aortic arch, is transmitted to the ballistocardiograph table and a corresponding deflection of the beam of light is produced. In persons of the same age, height and weight the greater the excursions of the beam of light, the greater is the stroke volume. Cardiac output was calculated by the area method and the correction of Cournand, Ranges and Riley[5] was employed. By means of a timer, the heart rate can be calculated from the film.

After the subject had lain quietly on the table for fifteen minutes, readings of cardiac output, stroke volume, pulse rate and blood pressure were taken. Following this, intravenous fluids were begun at a rate of around 20 cc. per minute, approximately two hours being required for the administration of 2,500 cc. Though there was an occasional exception, the first liter of fluid was usually isotonic solution of sodium chloride, the second 5 per cent dextrose in isotonic solution of sodium chloride and the third (when used) 5 per cent dextrose in water. Ballistocardiograms, pulse rate and blood pressure readings were taken after each liter of fluid. Owing to the illness of the dehydrated patients, the observations were terminated as soon as all the necessary fluid was in.

RESULTS

From the data recorded in the table, it will be seen that the cardiac output of the dehydrated group, expressed as percentage deviation above or below the average normal cardiac output per pound per minute,[6] increased substantially with the administration of intravenous fluids, while that of the normal group underwent no such rise. These results are represented graphically in figure 1. The increases in cardiac output were caused chiefly by increases in stroke volume. In figure 2 are typical ballistocardiograph tracings of a normal subject and of a dehydrated patient, taken before and after the intravenous administration of fluids.

Of particular interest were the responses of 1 patient (J. M.). He was admitted to the hospital acutely dehydrated with symptoms suggestive of pyloric obstruction due to a peptic ulcer. After the administration of 3,000 cc. of fluid intravenously, his cardiac output rose 41 per cent. He responded well to conservative therapy and was eating a normal diet within one week. Fifteen days after admission he was again given 3,000 cc. of fluid, and this time his cardiac output fell 1 per cent.

It is worth noting that 3,000 cc. of fluid administered intravenously provoked no subjective symptoms in any of the normal subjects, but it was followed by a prompt diuresis.

COMMENT

It was evident that the normal persons had to void frequently during the infusion and that the dehydrated patients did not. Thus in the latter group more fluid was retained in the body. Previous workers[7] have

4. Starr, I.; Rawson, A. J.; Schroeder, H. A., and Joseph, N. R.: Studies on the Estimation of Cardiac Output in Man, and Abnormalities in Cardiac Function from the Heart's Recoil and the Blood's Impacts: The Ballistocardiogram, Am. J. Physiol. **127**: 1, 1939.

5. Cournand, A.; Ranges, H. A., and Riley, R. L.: Comparison of Results of the Normal Ballistocardiogram and Direct Fick Method in Measuring Cardiac Output in Man, J. Clin. Investigation **21**: 287, 1942.

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7. Meek, W. J., and Eyster, J. A. E.: The Effect of Plethora and Variations in Venous Pressure on Diastolic Size and Output of the Heart, Am. J. Physiol. **61**: 186, 1922. Robertson, J. D.: Blood Volume Changes After Intravenous Infusions, Lancet **2**: 634, 1938. Altschule and Gilligan.[3] Gilligan, Altschule and Volk.[3]

shown that fluids given intravenously usually increase the circulating blood volume, and this doubtless occurred in most of our dehydrated patients. But in 1 dehydrated subject no dilution of blood proteins was demonstrated after the infusion. Though it is possible that a change in serum protein within the limits of laboratory error occurred, the increased cardiac output in such a case might be attributed partly to an improved condition of the myocardium, and of the vasomotor center of the brain when needed sodium chloride and water were supplied. That intravenous dextrose can stimulate a diseased heart was demonstrated by Edmunds and Cooper,[8] but in our experiments the maximum increase occurred after the first liter of fluid before any dextrose had been given; so we are not inclined to weigh this factor heavily. Despite the uncertainty regarding the exact mechanism, it is obvious that intravenous fluids may cause effects in diseased subjects very different from those observed in healthy persons.

In conclusion, several clinical considerations merit emphasis. It is evident from the results recorded that the feeling of general well-being so often experienced by the dehydrated patient after receiving fluid intravenously is accompanied by concomitant objective changes in the circulatory dynamics. That the maximum effect is quite often produced by the first liter of fluid suggests that this amount may be sufficient in instances in which there is danger of giving too much fluid intravenously. To state this somewhat differently, when giving fluids intravenously to dehydrated patients one should remain aware of the increased work which such therapy imposes on the hearts of these persons.

Effect of Intravenous Fluid Administration on Cardiac Output, Stroke Volume, Pulse Rate and Blood Pressure

Name, Sex, Age, Height, Weight	Intravenous Fluid, Cc.	Pulse Rate, per Min.	Blood Pressure, Mm. Hg	Cardiac Output per Minute, per Cent Deviation from Average Normal	Stroke Volume per Beat, Cc.	Blood Urea Nitrogen, Mg. per 100 Cc.	Serum Protein, Gm. per 100 Cc.	Serum Chloride, MEq per Liter	Diagnosis and Comment
Persons Showing No Evidence of Dehydration									
J. M., ♂	1. Before fluid	70	104/70	−12%	40	11	7.6	103.4	Pyloric stenosis; asymptomatic for 1 week prior to test
47 years	2. 1,000	66	100/60	− 6%	44				
5 ft. 7 in.	3. 2,000	72	96/58	− 2%	44				
120 pounds	4. 3,000	64	104/70	−13%	47				
L. G., ♂	1. Before fluid	66	136/76	−17%	65	10	6.6	.....	Healthy physician
27 years	2. 1,000	70	118/72	−17%	61				
5 ft. 11 in.	3. 2.000	68	114/70	−17%	64				
188 pounds	4. 3,000	66	114/70	−22%	60				
J. D. H., ♂	1. Before fluid	68	120/60	+ 3%	67	12	7.1	102.6	Healthy physician
25 years	2. 1,000	64	115/55	− 1%	68				
5 ft. 11 in.	3. 2,000	67	115/55	+ 7%	74				
165 pounds	4. 3,000	70	100/50	+ 5%	67				
E. N., ♀	1. Before fluid	84	114/86	0	33	8	6.9	102.7	Syphilitic; gastric crises; nausea and vomiting; not clinically dehydrated
32 years	2. 1,000	78	96/70	−10%	30				
5 ft. 4 in.	3. 2,000	73	80/56	− 2%	36				
94 pounds	4. 3,000	78	90/64	+15%	38				
L. L., ♀	1. Before fluid	102	104/70	+27%	40	13	6.7	96.0	Mild pneumonitis
58 years	2. 1,000	91	104/64	+18%	41				
5 ft. 2 in.	3. 2.000	80	110/68	+20%	43	11	6.8	100.8	
118 pounds	4. 3,000								
C. W. O., ♂	1. Before fluid	78	98/70	− 1%	46	9	5.3	97.6	Pyloric stenosis; mild vomiting; not clinically dehydrated
61 years	2. 1,000	70	105/70	0	52				
5 ft. 9 in.	3. 2,000	65	108/68	+ 1%	57				
134 pounds	4. 3,000	60	106/70	+13%	68				
Patients Who Were Dehydrated									
J. M., ♂	1. Before fluid	77	90/80	−13%	36	35	8.9	91.7	Pyloric stenosis; vomiting for 3 days
47 years	2. 1,000	65	110/70	− 2%	49				
5 ft. 7 in.	3. 2,000	73	110/65	+23%	55				
105 pounds	4. 3,000	78	110/65	+28%	54	27	6.3	98.5	
M. M., ♀	1. Before fluid	77	108/76	−10%	27	..	...	.....	Psychic vomiting; considerably dehydrated on clinical examination
29 years	2. 1,000	78	110/75	+35%	53				
5 ft. 2 in.	3. 2,000	91	108/68	+20%	32				
88 pounds	4. 3,000	92	100/60	+30%	36				
J. L., ♂	1. Before fluid	75	130/80	−20%	59	27	6.3	98.5	Intestinal obstruction; nausea and vomiting
47 years	2. 1,000	80	130/70	− 7%	65				
5 ft. 10 in.	3. 2,000	84	146/74	− 1%	65	19	6.3	92.3	
205 pounds	4. 3,000								
J. R., ♂	1. Before fluid	84	130/110	−22%	27	60	6.9	70.7	High intestinal obstruction
63 years	2. 1,000								
5 ft. 7 in.	3. 2,000	77	130/80	+ 9%	40				
105 pounds	4. 3,000								
H. W., ♀	1. Before fluid	84	110/70	+ 7%	27	69	6.9	74.7	High intestinal obstruction
76 years	2. 1,000	79	130/60	+61%	43				
5 ft. 5 in.	3. 2,000	80	136/60	+60%	43	16	4.4	99.7	
80 pounds	4. 3,000								

SUMMARY

1. The effect of intravenous fluids on the cardiac output, stroke volume, pulse rate and blood pressure of a group of dehydrated patients was compared with similar observations made in a group of subjects not demonstrably dehydrated.

2. The dehydrated group manifested a prompt and significant rise in cardiac output, resulting chiefly from an increase in stroke volume, and this was accompanied by a small increase in the pulse pressure.

3. Similar effects were not observed in the control group, although a smaller and more delayed increase in cardiac output was found in 2 subjects who had been vomiting.

8. Edmunds, C. W., and Cooper, R. G.: Action of Cardiac Stimulants in Circulatory Failure Due to Diphtheria, J. A. M. A. **85**: 1798 (Dec. 5) 1925.

Clinical Notes, Suggestions and New Instruments

COMPRESSION OF SEVENTH CERVICAL NERVE ROOT BY HERNIATION OF AN INTERVERTEBRAL DISK

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Several cases of herniation of a cervical intervertebral disk have been recorded in the literature, but nearly all of these have been instances in which compression of the spinal cord itself by a midline herniation predominated.[1] Semmes and Murphy[2] mention 4 cases from the literature which presented symptoms of compression of a cervical nerve root without involvement of the spinal cord and present 4 similar cases of their own. Three of the latter cases of unilateral herniation of a cervical intervertebral disk were verified by operation. The syndrome of compression of the seventh cervical nerve root as shown in the latter 4 cases was remarkably constant and occurred on the left side in all 4. All these patients gave a history of numerous "cricks" in the neck for months or years preceding the severe attack. Two gave a definite history of trauma to, or motion of, the neck as precipitating factors. In all the predominant symptom was excruciating pain. The radiation of the pain was to three regions: "(1) the precordium, (2) a point just medial to the upper angle of the scapula and (3) down the lateral and medial surfaces of the arm." In the 3 cases which presented objective sensory loss the disturbance consisted of hypalgesia and hypesthesia "limited to the index and middle fingers without involvement of the thumb, the hand or the forearm."

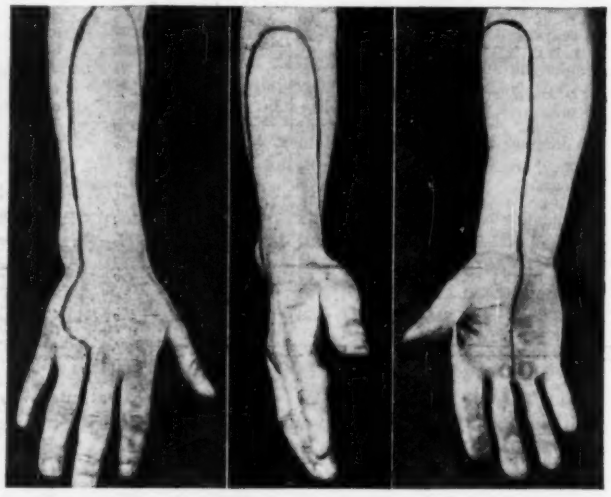
Recently there has come under our observation such a case of unilateral herniation of a cervical intervertebral disk in which there were certain differences from the syndrome as presented by Semmes and Murphy.

REPORT OF CASE

C. H., a white man aged 41, a factory fireman, referred by Dr. Luther J. Osgood of Waukegan, Ill., was admitted to the Illinois Neuropsychiatric Institute on Dec. 1, 1943 with a complaint of "pins and needles," "creeping" or "electricity" in the thumb, index and middle fingers of the right hand, which extended up the radial aspect of the right forearm. The past medical, family and marital histories were irrelevant.

The patient stated that he was quite well until January 1938, when he slipped and fell in an icy alley, striking the back of his head and shoulders on the pavement. He was not knocked unconscious and continued on his way to work with only a mild headache, which lasted not longer than two hours. He thereafter felt well and had no pain in the neck or shoulders from the fall. He did not even develop any swelling of his scalp. However, two days later he began to have a dull, continuous, aching pain in the region of the right shoulder blade (he indicated a localized area just beneath the medial portion of the spine of the scapula). The pain became increasingly severe in the next week. As a result he had to leave his work as a fireman.

The pain remained localized, nonradiating and severe. There was no associated numbness or paresthesias comparable to the present complaint at that time. He had chiropractic treatments, which made the pain so much more severe that he was obliged to stop them. Conservative treatment with heat and medicines prescribed by numerous physicians was to no avail. The pain in the region of the scapula gradually disappeared after six or seven weeks. Thereafter he was quite well in all respects and able to continue his work until six months later (summer of 1938), when he had another bout of the same pain, lasting three weeks. This time the scapular pain was associated with a sensation of "pins and needles" in the right thumb and the index and middle fingers, which extended up the radial aspect of the forearm nearly to the elbow. Osteopathic treatments were given, and again both the pain and the paresthesias gradually receded. Thereafter he was entirely well for one and a half to two years, when in 1940, without a known precipitating cause, he had a very severe recurrence of the same pain in the same location which lasted altogether about six months. The pain was again associated with the same paresthesias and was excruciating. It was so aggravated by lying down that for two months he had to sleep sitting upright in an easy chair. He went to numerous physicians, one of whom operated on the right side of his neck (apparently an anterior scalenotomy) without relief. The pain and paresthesia gradually receded over the next three months, during which time he received physical therapy to the right upper extremity for approximately two months.



Area of hypesthesia resulting from compression of the right seventh cervical spinal root by a herniation of the intervertebral disk.

He was again entirely well until about June 1943 (six months prior to admission), when he noticed recurrence of the paresthesias without pain the day after helping a friend move his household belongings. The abnormal sensations were continuous up to his admission here, but at no time after 1940 did he experience a recurrence of the pain from which he suffered earlier. If he held himself perfectly still, he experienced none of the paresthesias. He usually slept with his right hand underneath his head. Raising either arm above his head, throwing his head back in hyperextension of the neck, or moving the neck about in nearly any way evoked the crawling sensation in the right thumb and the index and middle fingers, extending up the radial border of the right forearm. Specific questioning revealed no history of "cricks" in the neck before or during the present illness. Though he had no pain, the paresthesias

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1. Adson, A. W., and Ott, W. O.: Results of the Removal of Tumors of the Spinal Cord, Arch. Neurol. & Psychiat. **8:** 520-537 (Nov.) 1922. Adson, A. W.: Diagnosis and Treatment of Tumors of the Spinal Cord, Northwest Med. **24:** 309-317 (July) 1925. Bradford, F. K., and Spurling, R. G.: The Intervertebral Disk, Springfield, Ill., Charles C Thomas, Publisher, 1941. Elsberg, C. A.: Tumors of the Spinal Cord, New York, Paul B. Hoeber, 1925; The Extradural Ventral Chondromas (Ecchondroses): Their Favorite Sites, the Spinal Cord and Root Symptoms They Produce and Their Surgical Treatment, Bull. Neurol. Inst. New York **1:** 350-388 (June) 1931. Hawk, W. A.: Spinal Compression Caused by Ecchondrosis of the Intervertebral Fibrocartilage with a Review of the Recent Literature, Brain **59:** 204-224 (June) 1936. Love, J. G.: Protrusion of the Intervertebral Disk (Fibrocartilage) into the Spinal Canal, Proc. Staff Meet., Mayo Clin. **11:** 529-535 (Aug. 19) 1936. Love, J. G., and Camp, J. D.: Root Pain Resulting from Intraspinal Protrusion of Intervertebral Disks: Diagnosis and Surgical Treatment, J. Bone & Joint Surg. **19:** 776-804 (July) 1937. Love, J. G., and Walsh, M. N.: Intraspinal Protrusion of Intervertebral Disks, Arch. Surg. **40:** 454-484 (March) 1940; Protruded Intervertebral Disks: A Report of 100 Cases in Which Operation Was Performed, J. A. M. A. **111:** 396-400 (July 30) 1938. Mixter, W. J., and Ayer, J. B.: Herniation or Rupture of the Intervertebral Disk into the Spinal Canal, New England J. Med. **213:** 385-393 (Aug. 29) 1935. Peet, M. M., and Echols, D. H.: Herniation of the Nucleus Pulposus: Cause of Compression of the Spinal Cord, Arch. Neurol. & Psychiat. **32:** 925-932 (Nov.) 1934. Stookey, B.: Compression of the Spinal Cord Due to Ventral Extradural Cervical Chondromas: Diagnosis and Surgical Treatment, Arch. Neurol. & Psychiat. **20:** 275-291 (Aug.) 1928; Compression of Spinal Cord and Nerve Roots by Herniation of the Nucleus Pulposus in the Cervical Region, Arch. Surg. **40:** 417-432 (March) 1940. Portugal, J. R.: Hérnia do nucleus pulposus na região cervical, Med. cir. pharm., October, 1943, No. 91, pp. 530-538.

2. Semmes, R. E., and Murphy, F.: The Syndrome of Unilateral Rupture of the Sixth Cervical Intervertebral Disk with Compression of the Seventh Cervical Nerve Root, J. A. M. A. **121:** 1209-1214 (April 10) 1943.

were of such severity that the patient desired operation for relief.

The general physical examination revealed nothing significant. The patient was quite husky and robust. There were the scars of an appendectomy and of the scalenotomy. Neurologic examination disclosed that he was tense and anxious. However, he was well aware of his "nervousness" and was quite reliable and consistent in his statements. There was no tenderness of the spine at any point, but hyperextension of the neck invariably initiated the paresthesias in the right forearm. The Naffziger test, using the blood pressure cuff about the neck, also produced the same result. When walking or standing, the patient held the right hand supported in his shirt-front in the napoleonic attitude and said that doing so relieved the paresthesias.

The patient was quite strong and muscular and was right handed. Accordingly, a mild weakness of extension of the right triceps muscle as compared to the left was felt to be significant, though there was no perceptible difference in the triceps reflexes. There was no demonstrable motor weakness of the hand or wrist. The sensory examination showed an area of hypalgesia, hypesthesia and hypothermesthesia over the right thumb and the index and middle fingers and on the radial border of the forearm, as shown in the illustration. Deep sensibility in this area was intact to the usual clinical tests. There was no area of complete analgesia except possibly on the tip of the index finger, but the skin of his hand was thick and horny, and for this reason absolute certainty could not be attained. The remainder of the entire neurologic examination showed normal findings. Laboratory examinations of the blood and urine were all negative, and x-ray films of the cervical spine showed no pathologic changes. On lumbar puncture the initial pressure of the spinal fluid and the alterations produced by compression of the jugular veins were entirely normal. The fluid was clear and colorless. It contained no excess of cells and only 12 mg. of protein per hundred cubic centimeters.

A diagnosis of herniation of the fifth cervical intervertebral [3] disk compressing the right seventh cervical nerve root was made. This region was explored on Dec. 7, 1943 under general anesthesia. The spines and right laminas of the sixth and seventh cervical vertebrae were exposed. A small amount of the inferior part of the sixth and the superior part of the seventh laminas and the ligamentum flavum were removed, exposing the seventh cervical nerve root. It was quite fixed at its exit through the intervertebral foramen by an obvious small protrusion directly anterior to it. When the nerve root was retracted upward there was visible a small herniation. It had the characteristic glistening white dome and felt rubbery. Incision of the posterior spinal ligament over this protrusion resulted in the spontaneous extrusion of the entire piece of herniated cartilage. It measured not over 3 by 3 mm. in diameter. No further loose material was found, and there was no opening into the disk of sufficient size to warrant further search into it. Removal of the small mass left the nerve root quite free and mobile, and the wound was closed.

The postoperative course was uneventful and the patient was almost entirely relieved of his symptoms. None could be induced by any posture, and as soon as testing could be made there was no demonstrable hypalgesia except on the tips of the index finger and the thumb. Even this objective hypalgesia had receded when he left the hospital on the sixteenth postoperative day, and only a sensation of subjective numbness in the tip of the index finger persisted.

SUMMARY

A man aged 41 developed herniation of the intervertebral disk between the sixth and seventh cervical vertebrae on the right side as the result of a fall on an icy street. This gave rise to repeated attacks of severe pain just below the medial part of the spine of the right scapula and persistent paresthesias of the thumb and the index and middle fingers and the radial border of the forearm, all on the right side. Removal of this small piece of herniated cartilaginous material through a partial hemilaminectomy gave immediate complete relief from all symptoms.

3. To eliminate confusion, it would probably be best to speak of the intervertebral disk between the sixth and seventh cervical vertebrae, but since there is no intervertebral disk between the first and second cervical vertebrae it is actually the fifth cervical disk whose extrusion compresses the seventh cervical nerve root at its exit.

FRACTURE OF THE BASE OF THE THUMB

A NEW METHOD OF FIXATION

ERIC C. JOHNSON, M.D., SAVANNAH, GA.
Surgeon, U. S. Public Health Service

Waugh and Ferrazzano [1] and Berkman and Miles [2] recently reported a new method of treatment of fractures of the metacarpals, exclusive of the thumb. This method consists in reducing the fracture, pushing a Kirschner wire through the fragment and then running the wire on through into the adjacent metacarpal, thus fixing the loose fragment. There is no reason why this same principle cannot be used for metacarpal fractures of the thumb, particularly the Bennett type of fracture involving the base of the thumb.

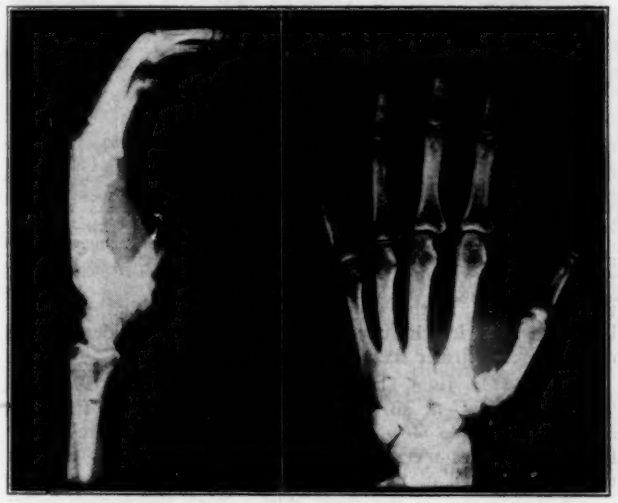

Fig. 1 (case 1).—Fracture of base of thumb.

Fig. 2 (case 1).—Complete reduction with Kirschner wire fixation and cast.

As textbooks and medical journals as far as is known have not described this technic, it is considered worth recording.

Fractures involving the base of the thumb usually give sufficient deformity, discomfort and loss of mobility to warrant the use of a method that will result in a complete anatomic reduction. If the hand is anesthetized and the assistant pulls on the thumb, the fracture can be reduced but the question is how to maintain this reduction. While the assistant is pulling on the thumb in such a manner that the first metacarpal is lined up on the same plane as the second metacarpal, the operator may then introduce a Kirschner wire into the radial side of the metacarpal shaft, just volar to the extensor tendons.

1. Waugh, R. L., and Ferrazzano, G. P.: Fractures of the Metacarpal Exclusive of the Thumb, Am. J. Surg. **59**: 186 (Feb.) 1943.
2. Berkman, E. F., and Miles, G. H.: Interral Fixation of Metacarpal Fractures Exclusive of the Thumb, J. Bone & Joint Surg. **25**: 816 (Oct.) 1943.

After the wire has been passed through the shaft and through the first interspace, it is run through the second metacarpal shaft. A small plaster cast can then be applied to the hand and wrist while the assistant is still holding the thumb. The fixation by the Kirschner wire and the plaster cast will maintain

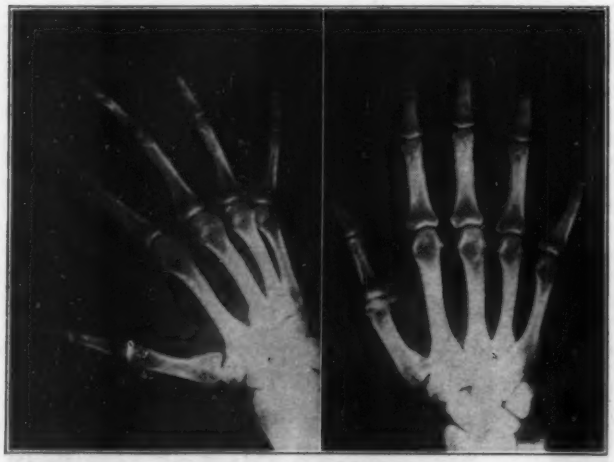

Fig. 3 (case 1).—Result: no deformity, fracture line imperceptible after six weeks.

the reduction. If the operator is not certain that one wire has done the trick, he can insert another wire beside the first one and get a firmer fixation with the two wires.

Case 1.—On June 11, 1943 R. W., a girl aged 19 years, "grease monkey" at an army air base, was filling a tire with air when the tire blew up. She sustained a fracture of the base of the first metacarpal of the left hand and a fracture through the head of the third metacarpal and the base of the fourth metacarpal of the right hand. With the patient under general anesthesia a Kirschner wire was passed through the distal end of the second metacarpal and through the fractured head of the third metacarpal of the right hand, and a small cast was applied. The problem of how to treat the Bennett's fracture of the thumb of the left hand was then considered. Since fixation of fragments by the use of Kirschner wire had obtained good results in fractures of the other metacarpals, it was decided to try this method in a fracture of the first metacarpal. The thumb was grasped firmly and pulled out

Fig. 4 (case 2).—Comminuted fracture of base of thumb involving joint surface.

and back so as to bring the first metacarpal shaft on the same plane with the second metacarpal shaft. The assistant pressed forward on the back of the second metacarpal and backward on the front of the first metacarpal. A Kirschner wire was then pushed through the midshaft of the first metacarpal and on through the shaft of the second metacarpal. A light cast was applied. X-ray examination showed that a complete anatomic reduction had been obtained. Within six weeks the fracture was completely healed and the patient had full range of motion, with no deformity.

Case 2.—On July 3, 1943 J. B., a seaman aged 30 was admitted with a fracture at the base of the first metacarpal of the right hand, following a fist fight. The same method of treatment was used. In this case, since it was not sure that the Kirschner wire had properly impaled the second metacarpal, another wire was inserted and the cast applied. X-ray examination showed that both wires were in good position and that there was an excellent anatomic reduction. Within eight weeks the fracture line was no longer visible and the joints of the thumb were freely mobile and painless.

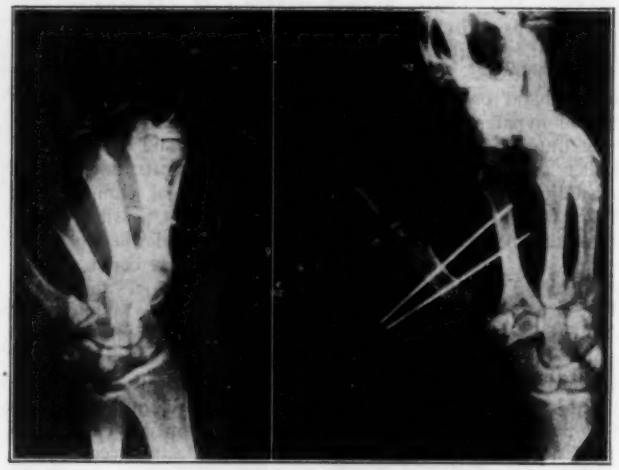

Fig. 5 (case 2).—Complete reduction by traction; fixation by two pins.

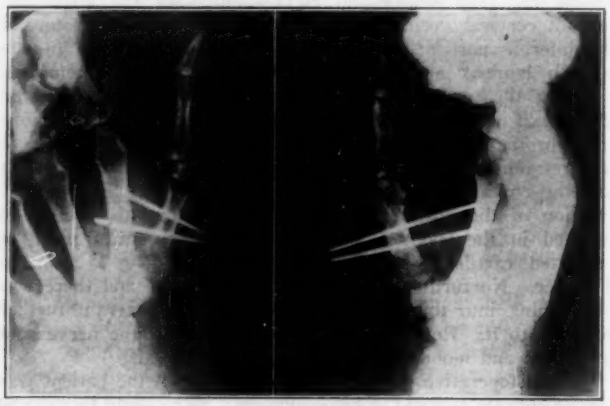

Fig. 6 (case 2).—Result after eight weeks: normal bone and joint contour; fracture line imperceptible.

SUMMARY

A simple method for an anatomic reduction of fractures of the base of the first metacarpal has been employed. The convalescence and results of the method have been highly satisfactory both to the patient and to the surgeon.

U. S. Marine Hospital.

Medical Point of View of Criminals.—From the medical point of view, criminals can be classified broadly under the headings of normal, subnormal, mentally defective, psychoneurotic, psychopathic and psychotic. But the groups sometimes overlap, and no psychiatric classification is likely to give entire satisfaction until the dividing line between mental diseases and character anomalies is established with some degree of precision apart from personal estimates.—East, W. Norwood: The State, the Criminal and the Psychiatrist, *Proc. Roy. Soc. Med.* **37**:11 (Nov.) 1943.

COUNCIL ON PHARMACY AND CHEMISTRY

At periodic intervals the Council on Pharmacy and Chemistry will offer brief statements on the present status of therapeutic or prophylactic procedure in fields of current interest. This information will be selected for its special value to those engaged in general practice.

Austin E. Smith, M.D., Secretary

COMPARATIVE COST OF VITAMIN MIXTURES

The multiplicity of mixed vitamin preparations that are now available in commerce has created much confusion. According to the promotion claims, each preparation is supposed to be better than all others. Sometimes the claims are based on some unique manufacturing technic, sometimes on the addition of minerals and often on the addition of vitamins other than those for which minimum daily requirements have been set. For recognized claims relating to vitamin therapy the physician should consult New and Nonofficial Remedies.

During June 1944 a survey was made of multiple vitamin products offered in one of the largest department stores in the United States. The selling costs and declared contents are tabulated herewith. For purposes of comparison the price rate per hundred capsules or tablets has been based on the package nearest to 100 that is manufactured by the firms. For example, if a manufacturer provides only 50 tablet packages for one dollar, 100 of the tablets are estimated to cost two dollars. Obviously, if any firms who do not now make a package of 100 should decide to do so subsequently, such cost figures may be different—probably lower.

None of the following preparations stand accepted by the Council for inclusion in New and Nonofficial Remedies. Further, the advertising claims offered on behalf of some of the mixtures preclude any possibility of their acceptance. The accompanying table is offered solely to emphasize the importance of examining the labels and of using standard reference sources such as New and Nonofficial Remedies to ascertain recognized actions and uses and to compare these with the profuse and deceptive statements prepared by the more ebullient promoters.

Daily Vitamin Requirements

Vitamin	National Research Council Recommended Daily Allowances †	Food and Drug Administration Recognized Minimum Daily Requirements
A	5,000 units	4,000 units
D	‡ units	400 units
B_1 (thiamine hydrochloride)	2 mg.	1 mg.
B_2 (riboflavin)	3 mg.	2 mg.
Niacin amide (nicotinic acid)	20 mg.	*
C (ascorbic acid)	75 mg.	30 mg.

* The minimum daily requirement of nicotinic acid has not been established, but there appears to be fairly good agreement among those qualified to speak authoritatively on the subject that 10 mg. is approximately the minimum daily requirement for this vitamin.

† Applicable to 3,000 calories intake for adult.

‡ 400 to 800 units of vitamin D recommended for pregnancy, lactation and children under one year.

Brands of Vitamin Mixture

Brand	Vitamin A Units	Vitamin D Units	Thiamine Hydrochloride Mg.	Riboflavin Mg.	Niacin Amide Mg.	C Mg.	Price Per Package	Price Rate per 100
A.B.D. Abbott	5,000	500	1	.....	.....	..	$1.79 for 100 capsules	$1.79
A B D E C (Parke Davis & Co.)	5,000	500	2	2	10	75	4.86 for 100 "	4.86
A.B.D.G. Abbott	5,000	500	1	0.4	.....	..	2.55 for 100 "	2.55
A.B.D. Hi Potency	4,000	400	1	2	10	..	2.98 for 100 "	2.98
A B D O L with Vitamin C (P. D. & Co.)	5,000	500	1.5	2	20	30	4.23 for 100 "	4.23
A.B.D.O.L. Improved (Parke Davis & Co.)	5,000	500	1.5	2	.....	..	2.98 for 100 "	2.98
Bax (McKesson)	5,000	500	1	2	10	30	2.39 for 60 "	4.00
Dayamin (Abbott)	5,000	800	3	3	20	75	6.95 for 100 "	6.95
Groves ABD	4,000	400	1	.....	.....	..	0.98 for 76 "	1.36
Hepicebrin (Lilly)	5,000	500	1	2	.....	30	3.42 for 100 "	3.42
Multicebrin (Lilly)	5,000	500	3	2	20	75	4.86 for 100 "	4.86
Pan-Vitex (Testagar & Co.)	5,000	1,000	10	5	50	100	3.39 for 50 "	6.78
Squibb Special Formula	5,000	800	2	3	20	75	5.00 for 100 "	5.00
Stamms (Standard Brands)	1,667	167	0.333	0.667	3.333	10	1.69 for 96 "	1.76
Stuart Formula (Stuart Co.)	2,500	400	1.875	1.5	12.5	37.5	2.30 for 96 "	2.40
Unicaps (Upjohn)	5,000	500	1.5	2	20	37.5	2.96 for 100 "	2.96
Vi Magna (Lederle)	5,000	500	3	2	20	30	3.19 for 100 "	3.19
Vigran (Squibb)	4,000	400	1	2	10	30	3.98 for 100 "	3.98
Vims (Lever Bros.)	1,667	167	0.333	0.667	3.333	10	1.69 for 96 "	1.76
Vipenta Perles "Roche"	5,000	500	1	0.3	.....	30	3.73 for 100 "	3.73
Visyneral (Adult) (U. S. Vitamin Corp.)	4,000	570	1.5	2	10	30	8.00 for 200 "	8.00*
Vita-Kap (Abbott)	5,000	500	1.5	2	20	37.5	4.22 for 100 "	4.22
Vitaminets "Roche"	1,667	167	0.667	0.667	5	16.67	2.45 for 100 "	2.45
Vitamins plus (Vitamins Plus, Inc.)	5,000	500	1	2	10	30	4.89 for 144 "	6.80**
White's Multi Vi	5,000	500	1	1	10	30	2.70 for 100 "	2.70

* One half or 100 capsules of a 200 capsule package contain minerals only.

** Two types of capsules are required to provide the above vitamins; there are 144 capsules in a package, 72 containing vitamins A and D, 72 the other vitamins.

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SATURDAY, SEPTEMBER 2, 1944

INDUSTRIAL HEALTH SERVICE FOR FEDERAL EMPLOYEES

Recently hearings were conducted in Washington on H. R. 4909 by the subcommittee of the House Committee on Civil Service. This bill proposes to make available to federal government employees the kind of medical service found generally advantageous to private industry. Dr. Carl Peterson, Secretary of the Council on Industrial Health of the American Medical Association, presented the views of the Council on the essential elements of a good industrial health service:

1. A competent physician who takes genuine interest in applying the principles of preventive medicine and hygiene to employed groups and who is willing to devote regular hours to such service in the working environment.

2. Industrial nurses with proper preparation, acting under the physician's immediate supervision or under standing orders developed by him or by the committee on industrial health of the county medical society.

3. Industrial hygiene service directed at improvement of working environment and control of all unhealthful exposures, to be provided by physicians and others with guidance and assistance from the specialized personnel in state and local bureaus of industrial hygiene.

4. A health program, which should include:

(*a*) Prompt and dependable first aid, emergency and subsequent medical and surgical care for all industrially induced disability.

(*b*) Health conservation of employees through preventive medicine, physical supervision and health education.

(*c*) Close correlation with family physicians and other community health agencies for early and proper management of nonoccupational sickness and injury.

(*d*) Good records of all causes of absence from work as a guide to the establishment of preventive measures.

5. Adequate compensation for industrial health personnel.

In respect to treatment, the Council on Industrial Health draws two clear distinctions:

1. Treatment of compensable injuries and diseases: The disabled worker should be free to choose his physician from all those licensed doctors of medicine competent to supply the required services except in situations provided for by chapter III, article VI, section 3 of the Principles of Medical Ethics, which reads as follows:

> The phrase "free choice of physician," as applied to contract practice, is defined to mean that degree of freedom in choosing a physician which can be exercised under usual conditions of employment between patient and physician when no third party has a valid interest or intervenes. The interjection of a third party who has a valid interest or who intervenes does not per se cause a contract to be unethical. A "valid interest" is one where, by law or necessity, a third party is legally responsible either for the cost of care or for indemnity. "Intervention" is the voluntary assumption of partial or full financial responsibility for medical care. Intervention shall not proscribe endeavor by component or constituent medical societies to maintain high quality of service rendered by members serving under approved sickness service agreements between such societies and governmental boards or bureaus and approved by the respective societies.

2. Treatment of noncompensable injuries and diseases: The treatment of injuries or diseases not industrially induced is the function of private medical practice. The physician in his industrial relationships should abstain from such services except in the case of:

A. Minor ailments. The physician in industry may treat minor physical disorders which temporarily interfere with an employee's comfort or ability to complete a shift, and for the relief of which he may need immediate medical attention.

B. First aid for urgent sickness. The physician in industry should employ such measures as the emergency dictates in all cases of urgent sickness occurring during working hours on the working premises, until such time as prompt notification of the family physician relieves him of further responsibility.

C. Rehabilitation after sickness and injury. The physician in industry can properly assume responsibility for those phases of rehabilitation after disability industrially induced or otherwise which progress best under controlled working conditions.

Examination of the bill indicated that its proposals did not diverge greatly from the Council's position. During the hearings the committee seemed to be genuinely concerned about the values to be received from such expenditure of public funds, specifically reduction of lost time from sickness, improved production and improved personnel relations. Representatives of man-

agement, labor and medicine who testified were all in general accord that these benefits commonly observed in industry should prevail with equal force in the government. There was objection to the proposal that these industrial health services be set up only on recommendation of the Civil Service Commission after consultation with the United States Public Health Service. The alternative recommendation was that each agency be responsible for its own health program but that each agency may secure medical services by agreement with the Public Health Service. The committee particularly asked for reassurance that a health program of this kind would supplement rather than supplant the activities of the private physician. The general tone of the hearings lent encouragement to the hope that a health service could be organized for government workers along lines which experience in private industry has proved dependable and successful.

THE MODE OF ACTION OF THE SULFONAMIDES

During the course of the development of sulfonamide chemotherapy many theories have been propounded relative to the fundamental mode of action of these agents. A recent review by Henry [1] discusses certain of the existing theories. Early belief that the sulfonamides stimulate the defensive powers of the host or inactivate bacterial toxins are, in light of present knowledge, rather questionable. The primary action of these drugs is now generally agreed to be on the bacteria themselves, and the important manifestation of this action is bacteriostasis. How then do the sulfonamides act on bacteria to inhibit their growth?

The assumption that the sulfonamides are oxidized in the body to their hydroxy derivatives led to the so-called anticatalase theory of their mode of action. This theory assumed that bacteria convert sulfonamides to hydroxy derivatives, which inhibit the enzyme catalase. The absence of this enzyme was supposed to allow the hydrogen peroxide from bacterial metabolism to accumulate to a point at which it inhibited bacterial growth. This theory was discredited by the subsequent observations that certain bacteria are inhibited by sulfonamides (*a*) in the absence of catalase (*b*) even though they do not produce peroxide (*c*) although they are peroxide resistant and (*d*) in the absence of conditions necessary for the production of peroxide (i. e. anaerobic organisms).

As a result of the now extensively confirmed observation that para-aminobenzoic acid inhibits the sulfonamide effect, a currently popular theory of the mode of action of the sulfonamides developed. This theory is based on the assumption that para-aminobenzoic acid is an essential metabolite for bacterial growth, participating in the formation of certain vital enzyme systems. It was claimed that the sulfonamides, because of close chemical similarity to para-aminobenzoic acid, were capable of forming ineffective substitutes for this essential metabolite in vital enzyme systems. This theory has done much to further our knowledge of the pharmacology of the sulfonamides. However, the failure of this theory to explain certain recent observations has led to a rather critical reexamination of its claims. If the para-aminobenzoic acid theory is valid, then the widespread effectiveness of the sulfonamides as cell inhibitors would indicate that para-aminobenzoic acid is an almost universally essential metabolite. This, however, remains to be shown positively. According to Henry, para-aminobenzoic acid has been demonstrated to be an essential metabolite for only one of the pathogenic bacteria, the diphtheria bacillus. A number of other inhibitors of the sulfonamides, such as certain purines, amino acids, glucose, mercuric chloride and urethane, have now been demonstrated. If the logic of the para-aminobenzoic acid theory is established, these substances should also be considered essential metabolites, a view that is obviously fallacious with regard to certain of these inhibitors.

Finally, it was observed in a charcoal model that para-aminobenzoic acid can competitively inhibit the action of the sulfonamides without in itself being an "essential metabolite." Sulfanilamide inhibits the adsorption of methylene blue by charcoal and is in turn inhibited in this respect by para-aminobenzoic acid. Para-aminobenzoic acid therefore effectively antagonizes most of the actions of the sulfonamides, with the exception of certain toxic actions in mammals. The method of this antagonism is not well understood, and its direct relationship to the mode of action of the sulfonamides is somewhat questionable. The sulfonamides inhibit various of the known respiratory enzyme systems. The inhibition of bacterial multiplication bears a direct relationship to the inhibition of respiratory mechanisms of these bacteria, either aerobic or anaerobic.

A recent theory of the mode of action of the sulfonamides postulates that their chemical similarity to the whole or part of various coenzyme molecules allows them to combine with the specific proteins of the respiratory enzymes with either the displacement of the coenzyme by the drug or the formation of an inactive "drug-protein-coenzyme" complex.

A substantial fraction of the overall oxygen consumption of the cell still remains when cell division is completely stopped by the sulfonamides. Henry has therefore suggested that the action of the sulfonamides on bacteria resembles the action of certain narcotics, especially in regard to the more or less specific inhibition of that relatively small portion of the total respiration concerned with supplying the energy for cell division.

1. Henry, Richard J.: The Mode of Action of the Sulfonamides, Bact. Rev. **7**: 175, 1943.

The specific cellular respiratory enzyme systems against which the sulfonamides act have not as yet been clearly identified, nor has the manner in which these systems are altered been portrayed.

CHEMOSURGICAL TREATMENT OF CANCER OF THE LIP

The chemosurgical method was introduced by Mohs [1] for the excision of accessible forms of cancer under microscopic control. The tissues in question are fixed in situ by means of a suitable solution of zinc chloride and then excised and examined microscopically. This process is repeated if necessary until microscopically cancer free surfaces are reached. The fixation of the tissue by the zinc chloride does not interfere with the microscopic work. A special clinic was established in the department of surgery in the University of Wisconsin eight years ago, and since then many hundreds of cases of cancer have been subjected to the chemosurgical treatment. The results are now becoming available for analysis and evaluation. The first report on these results deals with cancer of the lip.[2]

The report covers the cases treated between July 7, 1936 and May 29, 1943. The cure rates are 91.5 per cent of 164 cases after six months, 59 per cent of 73 cases after three years and 87.5 per cent of 38 cases after five years. The cure rate of 87.5 per cent after five years appears to surpass recently published rates for surgical and radiotherapeutic methods of treatment of cancer of the lip, but of course these rates are not based on sufficiently standardized material to yield strictly comparable results. This is particularly the case with respect to radiotherapy by standardized methods in expert hands.

There would seem to be no question, however, as to the value of the chemosurgical method. The microscopic control of excision gives the method an unequaled advantage—"time after time, unsuspected outgrowths of small caliber from the main tumor mass were found microscopically, at times extending a considerable distance after becoming grossly invisible." The method is practically without risk, it conserves lip tissue and it has no tendency to cause metastasis. As a rule regional metastasis must be removed by standard surgical dissection. "Chemosurgical treatment is particularly advantageous for cancer of the lip recurrent after surgical operation or irradiation. Such lesions often respond poorly to repetition of the original therapy, but they almost invariably respond to chemosurgical treatment." The chemosurgical method of treating cancer is another example of the value of expert specialization along a particular line. Further practical progress requires special training and facilities.

1. Mohs, F. E., and Guyer, M. F.: Preexcisional Fixation of Tissues in the Treatment of Cancer in Rats, Cancer Research **1**: 49 (Jan.) 1941. Mohs, F. E.: Chemosurgery: A Microscopically Controlled Method of Cancer Excision, Arch. Surg. **42**: 279 (Feb.) 1941.
2. Mohs, F. E.: Chemosurgical Treatment of Cancer of the Lip: A Microscopically Controlled Method of Excision, Arch. Surg. **48**: 478 (June) 1944.

THE INTERNATIONAL LABOR ORGANIZATION ON SICKNESS INSURANCE

Possibly the action of the International Labor Organization at its twenty-sixth conference in Philadelphia during April and May of the present year may have a greater influence on sickness insurance legislation than any of the laws proposed in Congress.[1] Delegates from forty-one nations composed this conference, including nearly all Allied and neutral nations except the Soviet Union. There are four representatives from each nation. Two of these are appointed by the government, and one is chosen by employer and the other by labor organizations.

The recommendations for sickness insurance are more elaborate than those of any previous conference. They constitute a complete outline for legislation; if previous experience points to future possibilities, these recommendations are likely to be followed in legislation introduced in nearly all the countries not having sickness insurance at the present time. Some of the features in the recommended legislation especially suggested are as follows:

The medical care service should cover all members of the community, whether or not they are gainfully occupied.

All care and supplies should be available at any time and without time limit, when and as long as they are needed, subject only to the doctor's judgment and to such reasonable limitations as may be imposed by the technical organization of the service.

Complete and up to date technical equipment for all branches of specialist treatment, including dental care, should be available, and specialists should have at their disposal all necessary hospital and research facilities and auxiliary outpatient services such as nursing, through the agency of the general practitioner.

To achieve these aims, care should preferably be furnished by group practice at centers of various kinds working in effective relation with hospitals.

The working conditions of doctors and members of allied professions participating in the service should be designed to relieve the doctor or member from financial anxiety by providing adequate income during work, leave and illness and in retirement, and pensions to his survivors, without restricting his professional discretion otherwise than by professional supervision, and should not be such as to distract his attention from the maintenance and improvement of the health of the beneficiaries.

The professional supervision of the members of the medical and allied professions working for the service should be entrusted to bodies predominantly composed of representatives of the professions participating with adequate provision for disciplinary measures.

The central government agency should consult the representatives of the medical and allied professions, preferably through advisory committees, on all questions relating to the working conditions of the members of the professions participating, and on all other matters primarily of a professional nature, more particularly on the preparation of laws and regulations concerning the nature, extent and provision of the care furnished under the service.

Group medical service is recommended, and governments are urged to provide equipment for medical centers. The use of salaried physicians is recommended under certain circumstances.

1. International Labour Conference, Provisional Record, 26th Session, Philadelphia No. 30, Social Security Bulletin **7**: 11 (June) 1944; Monthly Labor Review **59**: 1 (July) 1944.

The health sections were adopted by a vote of 76 to 6, with 23 extensions. The attitude of one of the employers' representatives, Henry I. Harriman of the United States, who voted against the health section, was expressed as follows:[2]

> The employers' group was frankly surprised at the universality of the demand for all-inclusive social security legislation. It was their feeling, as it is mine, that such laws must come as a matter of evolution and I personally voted against the final resolution, feeling that it went too far and too fast.
>
> Now that I am back from Philadelphia and have had an opportunity to view the conference with better perspective, I feel that the employers of the United States must face the demand for enlarged social security and that if they are wise they will not try to stop the enactment of such laws but will guide them into sound and reasonable form.

Current Comment

POLITICAL CARE OF THE MENTALLY ILL IN NEW YORK

When an epidemic of amebic dysentery occurred in the Creedmoor State Hospital in New York in March 1943, Gov. Thomas E. Dewey appointed a commission to investigate the management and affairs of the Department of Mental Hygiene of the State of New York and the institutions operated by it. That report,[1] which has just been made available, emphasizes again the defects that seem inseparable from political medicine. In 1942 New York mental hospitals were caring for 83,053 patients at an annual cost of $30,474,048.08. The commission found everywhere signs of inadequate examination of mental defectives, unsatisfactory recording of physical conditions on admission and lack of professional care, owing largely to the use of an undermanned professional staff. "The emphasis in all the institutions has been on administration at the expense of clinical medicine," says the report. This is the familiar criticism of all types of political medicine. In the mental hospital service in New York State advancement went to "careerists" and not to the psychiatrists of wide experience and knowledge. New methods of treatment such as shock and physical therapy disturbed the routine of the institutions and were therefore neglected. The report indicates that this service had not attracted competent physicians. Nurses were insufficient in numbers and defective in quality and were assigned to administrators and their families rather than to patients. The diets were monotonous and were not supervised by dietitians. Research and education were neglected or isolated in bureaucratic subdivisions apart from the treatment of patients. Here were all the apparently inevitable evils of mass medical treatment. Here were all the faults that usually accompany compulsory political care. Here, in miniature, is a picture of what the American people may expect if political medicine ever takes over general medical care in this country.

2. Best's Insurance News **45**: 27 (Aug.) 1944.

1. The Care of the Mentally Ill in the State of New York. A Report by a Commission Appointed by Honorable Thomas E. Dewey, Governor of the State of New York, Pursuant to Section 8 of the Executive Law, to Investigate the Management and Affairs of the Department of Mental Hygiene of the State of New York and the Institutions Operated by It. Paper. Pp. 124, with 3 illustrations. New York, 1944.

WALTER REED AND YELLOW FEVER

The investigations on tropical disease now being made all over the world focus attention again on the original experiments conducted under the direction of Walter Reed, which set the pattern for this type of study. In this war members of our armed forces have been decorated for their services as volunteers in the study of sandfly fever and other unusual conditions. When Reed and Carroll landed in Cuba in June 1900, Dr. Walter Reed came to live at the post hospital in Columbia Barracks. He found as executive officer on duty Lieut. Albert E. Truby, later retired as brigadier general. In 1943 General Truby assembled the records and reports of the Yellow Fever Commission and told the story which will be for all time one of the epics in the history of medicine.[1] The Reed board began its work on June 25, 1900. The story of the self sacrifice, the difficulties that they encountered, the tragedy of the death of Lazear have all been reflected in many a magazine article, in books, in plays and in motion pictures. The Truby account is exceptional because it is so fully documented and because it is really a first hand report. In view of the place that malaria has come to occupy in the present war, it is interesting to read in the annual report of General Leonard Wood to the Secretary of War, June 30, 1901, the following statement:

> With the acquisition of our recent knowledge of the propagation of malarial fevers, it may be taken for granted that this preventable disease will be hereafter greatly reduced and, at most posts, practically eliminated. As an instance, for the week ending June 23, 1900 there were 34 cases of malarial fever under treatment at Rowell Barracks, Cuba (Cienfuegos). A year afterward, for the week ending June 22, 1901, chiefly in consequence of sanitary measures promoted by the post surgeon, Lieutenant A. E. Truby, there was not a single case.

HIGH COST OF VITAMIN THERAPY

Elsewhere in this issue (page 29) appears a statement from the Council on Pharmacy and Chemistry on the Comparative Cost of Vitamin Mixtures, which should help explain the $179,000,000 spent for vitamins in 1943. Those who are familiar with the true indications for vitamin therapy already realize how many hundred million dollars are spent needlessly; others have only to glance at the Council's report. As the report reveals, the individual costs of vitamin mixtures vary greatly, almost as much as the promoted claims. No group of agents is now subjected to greater advertising abuse than vitamins. The radio, newspapers, store counters and other mediums constantly attract the ear and eye with pleas to improve the health, correct constipation, avoid dizzy spells and be successful with love and business affairs. How? Simply by taking vitamins according to the promoters! Fortunately there are bodies such as the Council on Pharmacy and Chemistry to set forth in succinct fashion the basic claims that may be made for vitamins. Such publications of the Council as New and Nonofficial Remedies present the scientifically recognized actions and uses of vitamins. This information should be spread widely.

1. Memoir of Walter Reed: The Yellow Fever Episode, by Albert E. Truby, Brigadier General, U. S. Army, Retired, New York, Paul B. Hoeber, Inc., 1943.

MEDICINE AND THE WAR

ARMY

INVESTIGATION OF JAPANESE MEDICAL DEPOTS ON BIAK ISLAND

Captain Earl W. Schafer
Squadron Flight Surgeon
MEDICAL CORPS, ARMY OF THE UNITED STATES

In a previous report I submitted information concerning an investigation of Japanese medical depots at a recently evacuated air strip in New Guinea. On the beachhead at Biak Island I had the opportunity to investigate four Japanese medical depots. At this time the Japs were still holding the air strips on the island.

The depots were situated along a road leading from the beach and were in the most part intact. They were large huts with a thatched roof and metal sides. The supplies were all in wooden packing cases stacked neatly in piles.

In the previous report a number of drugs and evidence of certain laboratory and x-ray equipment were listed. In addition to the drugs seen on New Guinea there were atropine sulfate crystals, iodoform crystals, magnesium sulfate crystals, thrombogen (Fiji), digitaminum, stibnal solution in 20 cc. ampules, sodium citrate solution, glacial acetic acid, phenol, lead acetate and concentrated iodine solution. The drugs were identified by the English or Latin names on the containers in addition to the Japanese. There were many items which could not be identified, but the same precision in packing and the predominance of glass containers were noted.

One of the most interesting and speculative biologic preparations found was many packing cases full of ampules of male sex hormone. Anthrax vaccine and antitetanic vaccine were found, also pound jars marked "Vitamin A and D Ointment" in large English letters.

Complete kits packed neatly with cotton in cardboard boxes 1 foot square, sealed in rubber bags and then tied with vines were noted in great numbers. Two of these kits were packed in a heavy wooden box. The kits contained a variety of drugs, bandages, intravenous saline solution (500 cc.), a quart of alcohol, a small rectangular metal box with a 20 cc. glass syringe and needles. The latter were each placed in the end of a small metal tube, two needles to the tube.

Because of high cliffs honeycombed with caves and close to the beachhead, large numbers of Japanese soldiers were able to withdraw into these natural fortresses. Later after artillery and naval bombardment, dive bombing, strafing and flame throwers were employed the majority of the enemy were disposed of. Medical supplies were found in many of the caves.

Quantities of saki and Kirin beer were captured. The quartermaster gave one issue of the latter to each of the units. The product proved to be as palatable as any American brand in the long long ago.

NEW NAME IS SELECTED FOR MORALE SERVICES DIVISION

The name of the Morale Services Division, Army Service Forces, has been changed to the Information and Education Division in order to describe more accurately its increasingly important functions. There will be no change in functions or personnel. First established in 1940 as a branch of the Adjutant General's Office, the Information and Education Division is now providing a worldwide service of information to troops as well as off duty educational programs. In addition to its headquarters in Washington, D. C., the division maintains offices in New York City and in Los Angeles. Its military personnel are in every theater where our troops are stationed.

The division, under the direction of Major Gen. Frederick H. Osborn, is charged with the planning and supervision of matters not pertaining to command which relate to the maintenance and improvement of morale within the Army. It conducts research studies through attitude surveys and performance data designed to furnish information to serve as a guide in problems of military leadership. It supervises the publication of *Yank*, the army weekly, and 2,023 other army newspapers, operates the largest correspondence school in the world, the United States Armed Forces Institute, which is helping 225,000 men and women of all the armed services prepare themselves for better jobs on their return to civilian life, and produces forty-two hours of transcribed entertainment and educational radio programs weekly for use by more than four hundred overseas radio outlets.

In addition, the Information and Education Division produces and distributes information and educational movies, directs army orientation courses and off duty discussion programs and prepares "short guides" to foreign countries to which our troops may be sent.

ARMY AIR FORCES CONFERENCE ON RHEUMATIC FEVER

A recent conference on rheumatic fever was held by the Army Air Forces in Denver. The objectives of the meeting were outlined by Col. William P. Holbrook, chief, Professional Division, Office of the Air Surgeon. Colonel Holbrook also discussed some of the unsolved problems of rheumatic fever which must be met during the next year. The report of the Committee on the Prophylactic Use of the Sulfonamides indicated that these drugs should be used in treatment only as a last resort and that their principal indication is for prophylaxis. The report of the Committee on Criteria for the Diagnosis of Rheumatic Fever contained recommendations based principally on the paper given by Dr. T. Duckett Jones at the Chicago session of the American Medical Association in June. The important recommendations of the Committee for Standardization of Convalescent Care of Rheumatic Fever were that no patient should be discharged to duty until he had actually undertaken duty under supervision in the convalescent center and that this duty should be in accord with his military occupational specialty.

PRISONERS OF WAR

Major Edwin S. Kagy is a prisoner of war of the Japanese and is now in a prison camp in Tokyo. Dr. Kagy is a graduate of Tulane University of Louisiana School of Medicine, New Orleans, in 1934. He was commissioned in the regular Medical Corps of the Army in August 1935 and was ordered to the Philippines in the fall of 1940. He was at Corregidor when Bataan fell and was taken prisoner. In the fall of 1943 he was transferred from the Philippines to Tokyo.

Lieut. Edwin Tucker, formerly of New Orleans, has been a prisoner of the Japanese since the fall of Bataan. Dr. Tucker graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1936 and entered the service July 2, 1941.

Capt. Peter C. Graffagnino, who was recently reported missing, is now a German prisoner. Dr. Graffagnino is a graduate of Tulane University of Louisiana School of Medicine, New Orleans, 1939. He entered the Army Medical Corps in September 1941.

COLONEL BLECKWENN APPOINTED NEUROPSYCHIATRIC CONSULTANT

Col. William J. Bleckwenn, professor of neuropsychiatry at the University of Wisconsin Medical School, Madison, has been appointed as the neuropsychiatric consultant to the Sixth Service Command with headquarters in Chicago. Dr. Bleckwenn recently returned from a period of over two years' service in the South Pacific, having gone out in command of a medical regiment. Later he served as a base area surgeon. He graduated from Columbia University College of Physicians and Surgeons, New York, in 1920 and entered the service Jan. 13, 1941.

TWO THIRDS OF ARMY WOUNDED RETURNED TO DUTY

According to a recent release, fully 96 per cent of all men wounded on battlefields recover, and of these about two thirds return to duty. When the convalescent period is reached the Army's new intensive program of reconditioning begins. This includes planned, progressive physical exercise to speed the recovery of strength and stamina. Occupational therapy encourages normal habits, and educational therapy mental advancement. Following the reconditioning program the men who have recovered but who do not meet the Army's physical standards for general service may remain in the Army in limited service status or in some cases may return to civilian life. Twenty-three per cent of those discharged from hospitals with serious physical limitations, and who were given the option of discharge from the Army, elected to remain in the military service, according to War Department figures for the period from June 25 to July 25. Continued hospital care as required will be available to casualties returned to civilian life, together with opportunity for vocational rehabilitation or academic advancement through study in schools and colleges, depending on circumstances and personal choice.

ARMY OPENS MALARIA TREATMENT CENTER

The Moore General Hospital, Swannanoa, N. C., has been designated a medical center for the study and treatment of tropical diseases under the command of Lieut. Col. Joseph M. Hayman of Cleveland. It was opened on September 1. There are 350 beds in this center for patients who are receiving active treatment, and in addition there are barracks facilities for 1,100 men for the reconditioning program. On release from bed treatment the patients will be transferred to the reconditioning barracks and continue any further treatment required in addition to the training needed to prepare for active duty again. As far as possible all tropical disease patients in the Army will be concentrated at the new center. Particular attention will be paid to malaria and filariasis. Facilities for expansion of bed capacities as required are being provided. The new center will be under the supervision of Lieut. Col. Francis R. Dieuaide, chief of the Tropical Disease Branch of the Medicine Division of the Surgeon General's Office, headed by Brig. Gen. Hugh J. Morgan.

CONSERVATION OF MEDICAL CORPS OFFICERS

The Adjutant General of the Army has recently issued a circular that will effect the strictest economy in the utilization of Medical Corps officers.

Tables of organization are changed by this order so that many positions that do not require the professional knowledge or skill of medical officers may now be filled by properly qualified Medical Administrative or Sanitary Corps officers. Such changes refer largely to duties of an administrative, executive or training nature.

Under the new provisions it is believed that Medical Corps officers will be more fully utilized for their technical knowledge and professional skill than in the past.

CAPTAIN ROBERT WARE MISSING

Capt. Robert B. Ware, formerly of Lynchburg, Va., has been reported missing in action since D day. Dr. Ware graduated from the Medical College of Virginia, Richmond, in 1940. He volunteered for duty and was called July 1, 1940. He attended officers' school at Carlisle Barracks, Pennsylvania, and has been overseas since Sept. 27, 1942.

MEDICAL DEPARTMENT ANNIVERSARY

The Army Medical Department observed on July 27 its 169th anniversary of the establishment of the first medical service for the American Army. The Medical Department had its inception in the creation by the Continental Congress on July 27, 1775 of a hospital for the American forces shortly after George Washington assumed command in the Revolutionary War.

ARMY AWARDS AND COMMENDATIONS

Colonel Edward J. Tracy

The Legion of Merit was recently awarded to Col. Edward J. Tracy, formerly of Albuquerque, N. M. The citation accompanying the award read "For service as Surgeon, VIII Bomber Command, from Aug. 11, 1942 to Jan. 6, 1944. He directed the expansion of medical service for personnel of this command from one group to a large number of groups. Through his foresight and initiative he overcame the problems of sanitation and care and evacuation of casualties which arose from this rapid expansion during a relatively short period. He instituted the policy of flight surgeons accompanying their units on operational crews under their care. He himself participated in several operational missions in order to gain information and better to evaluate the stress and strain to which combat personnel are subjected. The immediate knowledge gained by him enabled him to make recommendations to the commanding general, VIII Bomber Command, as to the limits imposed by the human factor and as to the policies to be adopted on leaves, passes and furloughs and related matters affecting morale. He also kept abreast of modern methods of treatment and use and care of protective flying equipment, applying these new methods whenever practicable. The initiative, skill and sound judgment displayed by him have contributed immeasurably to the combat achievement of the VIII Bomber Command." Dr. Tracy graduated from the University of Minnesota Medical School, Minneapolis, in 1930 and entered the service after graduation from the Army Medical School in 1932.

Captain Joseph E. Sokal

The Bronze Star Medal was recently awarded to Capt. Joseph E. Sokal for "meritorious achievement in connection with military operations against the enemy at Makin Atoll, Gilbert Islands, Nov. 20-21, 1943. Captain Sokal set up an aid station under extremely adverse conditions and under constant enemy sniper fire. From this position he administered medical treatment to approximately 100 men. He was tireless in his efforts to aid the wounded and by his diligent application of professional skill saved many lives." Dr. Sokal graduated from Yale University School of Medicine, New Haven, Conn., in 1940 and entered the service after completion of his internship in 1941. Besides the Gilbert Islands campaign he took part in the recent landing of Saipan. Dr. Sokal was also commended for his loyal cooperation, untiring zeal and unselfish devotion to duty during the Gilbert campaign; he has also been cited for the Silver Star.

Captain William E. Nunnery

The Soldier's Medal was recently awarded to Capt. William E. Nunnery "for heroism at March Field, California, on Feb. 1, 1944, when an army airplane made a forced landing and caught fire. An officer of the combat crew was pinned in this airplane. An explosion of the gas tanks was expected at any minute. Captain Nunnery, who was approximately 300 to 500 yards from the scene of the airplane at the time of its crash, immediately proceeded thereto and on arriving at the then burning airplane heroically and with utter disregard for his own safety assisted in extricating an officer crew member who was trapped and seriously burned." Dr. Nunnery graduated from the University of Kansas School of Medicine, Kansas City, in 1942 and entered the service in July 1943.

Captain Benjamin I. Schneiderman

Capt. Benjamin I. Schneiderman was recently awarded the Bronze Star. The citation that accompanied the award read in part "For heroic achievement in the action of 12 February 1944 near Anzio, Italy. During an enemy air attack on the Anzio-Nettuno beachhead area, Captain Schneiderman remained at his post of duty even though flak was falling throughout the hospital. Disregarding the extreme danger, he performed one operation after another. Bombs fell in the hospital area and shell fragments pierced the operating tent, yet he continued to perform his duties in a cool and efficient manner. His courage and devotion to duty reflect credit on himself and the Medical Corps." Dr. Schneiderman graduated from New York University College of Medicine, New York, in 1939 and entered the service in May 1942.

NAVY

NAVAL HOSPITAL IN ENGLAND TREATS HUNDREDS OF WOUNDED FIRST TWO WEEKS OF INVASION

At a U. S. naval hospital in England, several hundred U. S. casualties from France were treated with the loss of only 1 man. Formerly a British hospital, this institution is a quarter of a mile long, is three stories high with more than a hundred wards, operating rooms and laboratories, and is maintained in a state of constant readiness. Sixty outbuildings can be utilized in emergencies, almost doubling the normal capacity. The hospital maintains a staff of 50 doctors, 12 hospital corps officers serving as technicians, 98 trained navy nurses and 400 skilled hospital corpsmen. Another 180 men are engaged in maintenance. On D day the supply of medicine and drugs included 537,500 cc. of plasma, 398,500 cc. of other intravenous solutions, 794 gallons of alcohol, 50,000 tablets of sedatives of various types, 143,500 sulfonamide tablets and 71 pounds of sulfonamide powders, 50,300,000 units of penicillin, 299 pints of medicinal whisky, 4,958 bandages of all types, plus orthopedic equipment including 5,326 pounds of cotton, 2,500 pounds of plaster of paris, 100,000 yards of crinoline and 200 rolls of sheet wadding.

Each casualty on arrival at this hospital is examined separately by the chiefs of surgery, medicine and neuropsychiatry to determine as quickly as possible the preliminary treatment necessary and whether surgery is needed. After preliminary examinations and treatment each man is bathed, shaved, issued clean clothes and put into a clean, comfortable bed in rooms staffed twenty-four hours a day.

Complete arrangements for the transfer of this hospital from British to American hands began last fall, when Rear Admiral Luther Sheldon Jr., Medical Corps, U. S. N., assistant chief of the navy's Bureau of Medicine and Surgery, arrived in the United Kingdom. Early in the spring Capt. C. J. Brown, formerly of Philadelphia, brought his staff over to assume command. Capt. J. W. Miller, formerly of Washington, D. C., is executive officer. Other members of the medical corps on the staff are Capt. James M. Faulkner, Brookline, Mass., chief of medicine; Capt. A. H. Weiland, Coral Gables, Fla., chief of orthopedic surgery; Comdr. Henry W. Hudson, Waban, Mass., chief of surgery, and Comdr. Robert T. Baldridge, Providence, R. I., chief of the urology department.

MEDICAL COMPANY COMMENDED FOR MERITORIOUS SERVICE

Company C, Third Medical Battalion, attached to the Third Marine Division, Reinforced, in the capture of a beachhead on Bougainville Island, has been commended by Major Gen. Roy S. Geiger, U. S. Marine Corps, commanding general of the First Marine Amphibious Corps. The citation reads "During the military operations commencing Nov. 1, 1943, which resulted in the capture by the Third Marine Division, Reinforced, of a beachhead on Bougainville Island, British Solomon Islands, Company C, Third Medical Battalion, made conspicuous and valuable contributions to the success of our arms. At the battles of Cape Torokina, Koromokina Lagoon, the Coconut Grove, Piva, Piva Forks and Fry's Nose, as well as during enemy bombing attacks and combat operations of a minor nature, the personnel of the company brought aid to the wounded under the most adverse conditions of weather and jungle terrain, cheerfully enduring enemy fire throughout each of these actions and frequently risking their own lives in order to evacuate and administer medical assistance to the injured during the heat of combat. The officers and men of the company acquitted themselves gallantly, winning the admiration of the combat troops and saving the lives of hundreds of the wounded."

The commanding officer of the company was Lieut. Comdr. Rodney Robert Gleysteen. Dr. Gleysteen graduated from the State University of Iowa College of Medicine, Iowa City, in 1938 and entered the service Aug. 15, 1941.

Other Medical Corps officers with this company were Lieut. Leo John Koscinski, Chicago, who graduated from Northwestern University School of Medicine, Chicago, in 1941 and entered the service April 13, 1942; Lieut. Charles Reid Goodwin, Port Arthur, Texas, who graduated from the University of Texas Medical Branch, Galveston, in 1940 and entered the service in October 1942, and Lieut. Frederick Gordon Grant, Scotia, N. Y., who graduated from the University of Rochester School of Medicine and Dentistry, New York, in 1940 and entered the service in September 1942.

NAVAL HOSPITAL PROGRAM TO BE EXPANDED

Southern California, the Navy's largest medical center with more than 17,000 navy marine and coast guard men as patients in hospitals in this area, has an expansion program under way, including recommissioning of former navy hospitals at Spadra, Beaumont and Banning. In anticipation of increased intensity in Pacific warfare, additions are being made at several of the navy hospitals in southern California and work is under way to recommission the former army hospitals at Spadra, Beaumont and Banning. The three convalescent hospitals at Spadra, Beaumont and Banning now are being made ready for more than 3,000 patients. The hospital at Spadra will be commanded by Capt. Harold L. Jensen as an annex to the Corona hospital, also under his command. Spadra was formerly a state medical center. It has been adapted for service use with several temporary buildings added to the permanent structures erected by the state. The Corona hospital, formerly a luxurious hotel, is one of the nation's most beautiful medical centers. It has been named the rheumatic fever center for the Navy and is the largest navy tuberculosis center on the West Coast. An almost separate hospital within the hospital has been opened to treat cases of tuberculosis.

NAVY AWARDS AND COMMENDATIONS

Lieutenant William B. Neal Jr.

The Navy and Marine Corps Medal was awarded to Lieut. William B. Neal, formerly of Chicago, "for distinguishing himself by heroism while attached to the U. S. S. *Lansdale* during and following an attack by enemy aircraft off the coast of Algeria on the night of April 20, 1944. When the *Lansdale* was damaged and the ship subsequently sank, Lieutenant Neal was severely injured by the shock of the initial explosion but promptly commenced rendering first aid to other casualties of the disaster. With great skill and the utmost fortitude, he continued administering medical assistance until after the order had been given to abandon ship. When removed from the water by a rescue vessel he was completely exhausted but within a short time resumed his untiring efforts to revive survivors and care for the wounded for over thirty-six hours, at which time it became necessary to hospitalize him. He undoubtedly contributed to the saving of several lives. The extraordinary courage, selflessness and devotion to duty displayed by Lieutenant Neal were in keeping with the highest traditions of the Naval Service." Dr. Neal graduated from the University of Chicago School of Medicine in 1941 and entered the service in August 1943.

Commander Emil Edward Napp

Comdr. Emil Edward Napp, formerly of New Rochelle, N. Y., was awarded the Silver Star Medal "for conspicuous gallantry and intrepidity as a regimental surgeon during the seizure and occupation of Japanese held Cape Gloucester, New Britain, from Dec. 26 to 31, 1943. Accompanying assault troops into the zone of action on numerous occasions throughout this hazardous period, Commander Napp repeatedly risked his life in order to care for injured personnel and supervise their evacuation from front lines to battle aid stations, in one instance ministering medical aid to a wounded marine while pinned down by Japanese sniper fire. By his keen foresight in anticipating material needs of casualties in the field of battle and his outstanding skill, Commander Napp contributed to the saving of many lives. His professional integrity and daring courage in the face of grave peril were in keeping with the highest traditions of the United States Naval Service." Dr. Napp graduated from New York Medical College, Flower and Fifth Avenue Hospitals, New York, in 1933 and entered the service June 9, 1941.

MISCELLANEOUS

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

Combined Wartime Graduate Medical Meeting and Regional Meeting of the American College of Physicians, Hotel Vancouver, Vancouver, B. C.: The Recent Status of Rickettsia Disease, Dr. Matthew Riddle; Control of Staphylococcic Infections with Sulfonamide Drugs, Lieut. Col. Roy H. Turner; Clinical Experience with Penicillin, Capt. Charles E. Watts; Some Pharmacologic Problems in the Use of Chemotherapeutic Drugs, Dr. Norman D. Davis; luncheon address, Major Gen. G. R. Pearkes; Respiratory Limitations in Altitude Flying, Group Capt. G. E. Hall; Respiratory Disease Problems in an East Coast Base, Surg. Comdr. J. Wendell MacLeod; Visualization of the Chambers of the Heart and Great Vessels, Lieut. Comdr. Israel Steinberg; Experimental and Clinical Aspects of Carotid Sinus Reflexes, Dr. Hance Haney; dinner addresses, Dr. David P. Barr and Comdr. Corydon M. Wassell, September 14.

Hepatitis, Lieut. Col. Roy H. Turner; Psychosomatic Medicine, Brig. Gen. W. P. Warner; Gastroenterological Problems in the Canadian Navy, Surg. Comdr. J. Wendell MacLeod; Some Principles and Problems in Immunity, Dr. C. E. Dolman; Thiouracil in Graves' Disease, Dr. David P. Barr; Body Section Radiography, Comdr. Wendell G. Scott; Maintenance of Normal Body Temperature in Service Personnel, Group Capt. G. E. Hall; Some Experience with the Use of Gold Salts in the Treatment of Arthritis, Dr. P. H. Sprague; Observations on Active Rheumatic States, Dr. John MacEachern; Malaria Control (with two films), Lieut. Comdr. Frank P. Mathews, September 15.

Rhoads General Hospital, Utica, N. Y., in conjunction with the fifth district branch of the Medical Society of the State of New York: Tuberculosis, Drs. Ethan Flagg Butler and S. Eric Simpson; Chest X-Rays in Industry, Dr. William C. Jensen; Tuberculosis in Military Service, Capt. Daniel J. Feldman; president's address, Dr. Herbert H. Bauckus; Rehabilitation of the War Veteran, Dr. Roy Woodward; motion picture demonstration, "Psychology in Action," September 19.

At Mayo General Hospital, Galesburg, Ill.: Diseases of the Kidneys and Urogenital Tract, Drs. Francis D. Murphy and Wilbur E. Post and Lieut. Col. Harold C. Lueth, September 20.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, August 26, page 1197)

CALIFORNIA

Santa Monica Hospital, Santa Monica. Capacity, 220; admissions, 7,970. Mr. Ritz E. Heerman, General Manager (5 interns).

ILLINOIS

Belmont Community Hospital, Chicago. Capacity, 125; admissions, 3,778. Miss Gertrude F. Scofield, Superintendent (interns).

Elgin State Hospital, Elgin. Capacity, 4,946; admissions, 1,495 Dr. Charles F. Read, Managing Officer (residents—psychiatry).

Peoria State Hospital, Peoria. Capacity, 2,708; admission, 765. Dr. Joseph H. Ellingsworth, Medical Superintendent (residents—psychiatry).

NEW YORK

Harlem Eye and Ear Hospital, New York City. Capacity, 50; admissions, 1,719. Dr. Charles B. Meding, Executive Surgeon (resident—ophthalmology-otolaryngology).

Sydenham Hospital, New York City. Capacity, 247; admissions, 4,619. Miss Fanny Fried, Executive Secretary (interns—2 October, 2 November, 2 Decembter).

PENNSYLVANIA

Chester County Hospital, West Chester. Capacity, 178; admissions, 3,442. Mr. Alton F. Reichgert, Director (2 interns).

TENNESSEE

Davidson County Tuberculosis Hospital, Nashville. Capacity, 300; admissions, 328. Dr. R. R. Crowe, Superintendent (2 residents—tuberculosis, July 1945 to March 1946).

VIRGINIA

Alexandria Hospital, Alexandria. Capacity, 175; admissions, 4,474. Mr. R. G. Whitton, Superintendent (3 interns).

WARREN F. DRAPER PROMOTED TO MAJOR GENERAL

Announcement has just been made of the promotion of Brig. Gen. Warren F. Draper to the rank of major general. General Draper, a graduate of Harvard Medical School, Boston, in 1910, began as assistant surgeon, United States Public Health Service, in that year. During the first world war he was assigned to the Army and had charge of extracantonment sanitation in the Norfolk, Va., area. Since then he has served as assistant surgeon general in charge of the states relation division of the Public Health Service, and for three years he served as state health officer of Virginia. In 1939 he was named assistant to the Surgeon General under Dr. Thomas Parran and later became deputy surgeon general. In the spring of this year he was assigned to duty with the Army in the grade of brigadier general at the request of Hon. Henry L. Stimson, Secretary of War. At present General Draper is chief of the public health branch of civil affairs in the European theater. This branch is responsible for the care of ill and injured civilians in the battle area, helps distribute medical supplies and gives advice on prevention and control of disease among civilians and animals. General Draper was a member of the House of Delegates of the American Medical Association from 1925 to 1943 inclusive.

PUBLIC HEALTH UNDER HITLER

For the first time during the war Reich Health Leader Dr. Conti on May 24, according to DNB, addressed a large gathering of men and women medical students of Freiburg University when he spoke on the problem of recruiting for the medical profession. He drew a picture of the aims and tasks which today just after the victorious conclusion of the war face the future members of the medical profession in the spheres of public health, racial and population policy, and the guidance of the people from a purely scientific medical point of view. His statements, in which he drew a parallel between the profession of doctor and the young medical student of the period after the first world war and today, culminated in an appeal to make a substantial and energetic contribution to solving all problems arising in this struggle, which is a necessity of fate.

Referring in particular to future doctors, Conti emphasized that however great the number of new men and women doctors, we shall always need them. The postwar tasks in all the various fields of public health are so numerous that we can never have enough doctors. (Freiburg University has put a ban on admission to a number of other faculties.) After the war the German people will see a new upward development in the numbers of all population too which will put into the shade all previous experience. The basis of nutrition, which is closely connected with that of the health policy of the German nation, is completely safeguarded and all our enemies' hopes for a collapse have come to naught, for the victory in which we believe remains ours.

According to *Völkischer Beobachter* of April 23, 1944 (Germany) as part of the work of the RDF, the Office for Racial Policy, in agreement with the party chancellery, has founded a marriage bureau. It started as a correspondence center of the RDF first of all in Dresden. In view of the excellent results achieved in Saxony, a Rhineland branch of the correspondence center was recently opened in Strasbourg, Danzig, Frankfort on the Main, Munich, Graz, Vienna, Hanover and Berlin. The Cologne correspondence center is under the direction of the head of the Office of Racial Policy of the Gau Administration Köln-Aachen, Oberbereichsleiter Merzenich.

Nieuwe Rotterdamsche Courant of April 14, 1944 (Netherlands) publishes figures for cases of contagious diseases reported during the week March 19-25 inclusive: diphtheria 1,427 (Amsterdam 172, Rotterdam 164), scarlet fever 800 (Amsterdam 176, Rotterdam 73), infantile paralysis 13 (Hennaarderadeel 4).

ORGANIZATION SECTION

WASHINGTON LETTER

(From a Special Correspondent)

Aug. 28, 1944.

Recent Developments in Emergency Medical Service

Through their voluntary organization to meet disasters and emergencies under the Emergency Medical Service of the Office of Civilian Defense, doctors throughout the nation have demonstrated their ability to serve in time of disaster. Their work in the Hartford circus fire is one recent striking example. While the OCD budget has been reduced from some $4,000,000 last year to $778,000 for 1944, its voluntary program carries on, and there is indication that its emergency medical program is one form of voluntary organization that will continue after the war.

The OCD medical program has of late been under the direction of a U. S. Public Health Service doctor, Senior Surgeon John J. Bourke. As medical assistant to the director of civilian defense, Lieut. Gen. William N. Haskell, he has been responsible for much of the planning that has prompted recent developments. Most significant of these was the appointment of Public Health Service commissioned officers assigned to the service commands of the Army as liaison officers, to be available, in addition to their regular duties, as medical field representatives of the Office of Civilian Defense. Their new duties will be to assist the states in all Emergency Medical Service problems.

Because of budget limitations of OCD the services of medical officers in the nine civilian defense regions were terminated. As a result, General Haskell requested Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, to make the liaison officers available for OCD duty if needed. Dr. L. H. Thompson, Assistant Surgeon General of the U. S. Public Health Service, has pointed out that the new duties will involve dealings with the medical assistant to the director of OCD, with the state chiefs of Emergency Medical Service, the officers of the service commands in matters pertaining to Emergency Medical Service.

A word about the background of the Emergency Medical Service program of the Office of Civilian Defense: For several years volunteer organizations had been developed in fire and police services. Since EMS has more recently been developed, it has provided competent medical relationship in the community, assisted by an advisory committee representing the various responsible agencies such as the medical profession, hospital groups, nursing organizations and the Red Cross. It has provided a "relatively safe" type of field operation which allows for the use of specially trained volunteers in the field of first aid and rescue.

What is said to be even more important from the standpoint of prospective patients in a disaster is a coordinated central control which tends to prevent the overloading of any one institution beyond its capacity as to bed space and professional or specialized service. The internal organization and planning which have taken place within the hospitals as part of the Civilian Defense program have tended to develop competent medical teams under physician and nurse supervision to report promptly to the scene of the accident, while other professional groups within the hospital are assigned specific duties following the reception of patients which will allow them to exercise special skills in surgery, shock, resuscitation, burn therapy and fracture work to the ultimate advantage of the patient's recovery. The work of the local chief of Emergency Medical Service and his advisory committee has provided a careful, unbiased appraisal of the medical facilities.

The nine Public Health Service commissioned officers now with the army service commands as liaison officers, who will also act as field representatives of OCD, are:

Sr. Surgeon O. F. Hedley, Liaison Officer, U. S. P. H. S., First Service Command, 808 Commonwealth Avenue, Boston.

Sr. Surgeon Albert W. Russell, Liaison Officer, U. S. P. H. S., Second Service Command Headquarters, Governors Island, N. Y.

Sr. Surgeon Fred W. Kratz, Liaison Officer, U. S. P. H. S., Third Service Command Headquarters, U. S. Post Office and Courthouse, Baltimore.

Medical Director Joseph Bolten, Liaison Officer, U. S. P. H. S., Fourth Service Command, Post Office Building, Atlanta, Ga.

Surgeon Charles F. Blankenship, Liaison Officer, U. S. P. H. S., Fifth Service Command, Fort Hayes, Columbus 18, Ohio.

Sr. Surgeon Adolph S. Rumreich, Liaison Officer, U. S. P. H. S., Sixth Service Command, 2129 Civic Opera Building, 20 North Wacker Drive, Chicago 6.

Medical Director L. O. Weldon, Liaison Officer, U. S. P. H. S., Seventh Service Command, Federal Building, Omaha.

Medical Director K. E. Miller, Liaison Officer, U. S. P. H. S., Eighth Service Command, Fort Sam Houston, San Antonio, Texas.

Medical Director W. T. Harrison, Director Ninth U. S. P. H. S., Service District, 1223 Flood Building, San Francisco.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—A subcommittee of the House Committee on Labor has initiated hearings to investigate the aid given to the physically handicapped, pursuant to H. Res. 230 adopted by the House of Representatives in June 1944. Representative Kelley of Pennsylvania is chairman of the subcommittee. The other members are Representatives Randolph, West Virginia, Worley, Texas, Scanlon, Pennsylvania, Welch, California, Day, Illinois, and Baldwin, New York. The initial hearing was scheduled for the period extending from August 29 to August 31, at which time testimony was received with respect to the blind. A subcommittee of the House Committee on Civil Service has been conducting hearings on H. R. 4909, a bill to provide health programs for government employees. Among the witnesses who testified at the hearings were War Manpower Commissioner Paul V. McNutt, Civil Service Commissioner Arthur S. Flemming, Brigadier General Hines, Veterans Administrator, Surgeon General Parran, United States Public Health Service, Dr. Victor G. Heiser, Medical Consultant of the National Association of Manufacturers, and Dr. Carl Peterson, Secretary of the Council on Industrial Health of the American Medical Association. H. R. 5125 has passed the Senate, with numerous amendments, proposing to establish a Surplus War Property Administration and to provide for the proper disposal of surplus war property. One section assigns to veterans, including physicians and dentists, suitable preferences to the extent feasible in acquisition of types of surplus property useful in carrying on the business or professional activity of the veteran. In the discussion of this section on the floor of the Senate, reference was made to the fact that many physicians and dentists sold their "businesses to go into the armed forces when they were called."

Bills Introduced.—H. R. 5171, introduced by Representative Dingell, Michigan, provides that, under the rules and regulations prescribed by the Secretary of War, the Surgeon General of the Army will be authorized and directed to appoint as second lieutenants in the Medical Department of the Army enlisted men who have served three years or more in such department. H. R. 5172, introduced by Representative Dingell, Michigan, provides that under rules and regulations prescribed by the Secretary of the Navy the Surgeon General of the Navy will be authorized and directed to appoint as ensigns in the Medical Department of the Navy enlisted men who have served three years or more in the Hospital Corps. H. R. 5173, introduced by Representative Harless of Arizona, provides that any enlisted man in the Medical Department of the Army who is serving or shall have served in a combat area during the present war shall be paid additional compensation at the rate of $10 per month for the period beginning as of the date of the commencement of such service or as of Jan. 1, 1944, whichever date is the later, and ending six months after the date of the cessation of hostilities as proclaimed by the President.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Dr. McLester Named Chairman of Hospital Board.—Dr. James S. McLester, Birmingham, has been named chairman of a five member administrative board of hospitals which is to meet twice a month to administer operation of Jefferson and Hillman hospitals within the pattern of the University of Alabama School of Medicine, Birmingham. The position of chairman will be occupied by a member for one year, rotating among other members, according to vote of the board in a recent meeting with members of the Jefferson County Commission and Raymond R. Paty, LL.D., president of the university. Dr. McLester will serve as chairman until Dec. 31, 1945. Other members of the board are Judge Gardner F. Goodwyn Jr., Bessemer, vice chairman, E. A. Lowe, secretary, and Dr. Harry I. Jackson, Thomas W. Martin and Edward Norton, all of Birmingham.

CONNECTICUT

Clinical Congress.—The twentieth clinical congress of the Connecticut State Medical Society will be held at the New Haven Lawn Club, New Haven, September 28-29. Among the speakers will be:

Dr. William B. Terhune, New Canaan, Psychiatric Problems of the Returning Soldier.
Dr. John R. Paul, New Haven, Infectious Hepatitis.
Dr. Harry Gold, New York, How to Choose the Correct Digitalis Preparation.
Dr. Joseph E. F. Riseman, Boston, The Modern Treatment of Angina Pectoris.
Lieut. Col. Herrman L. Blumgart, M. C., The Relation of Effort to Myocardial Infarction.
Dr. Robert H. Williams, Boston, Thiouracil in the Treatment of Hyperthyroidism.
Dr. Robert M. Yergason, Hartford, Metallic Fixation of Fractures by the Use of Recently Devised Methods and Appliances: Special Reference to Kirschner Wire, Vitallium Screws, Tantalum Foil and Plates.
Dr. Herman E. Pearse Jr., Rochester, N. Y., Recent Advances in Common Duct Surgery.
Dr. Arthur J. Geiger, New Haven, Bacterial Endocarditis.
Dr. Joseph Kreiselman, Washington, D. C., Resuscitation.
Dr. Kenneth W. Thompson, New Haven, Present Trends in the Treatment of Varicose Veins.
Dr. Julian B. Herrmann, New York, Recent Advances in the Treatment of Cancer of the Breast.
Dr. John J. Morton Jr., Rochester, Progress in Cancer Research.

One afternoon session will be devoted to a symposium on penicillin medicine and surgery by Dr. Francis G. Blake, dean and professor of medicine, Yale University School of Medicine, and his staff and Dr. Samuel C. Harvey, professor of surgery at Yale, and his staff. A second afternoon session will be devoted to demonstrations in the treatment of burns at the New Haven Hospital and the care of extremities with deficient arterial circulation.

FLORIDA

Personal.—Dr. Robert G. Nelson, Tampa, has been appointed a member of the state board of medical examiners to succeed Dr. William M. Rowlett, Tampa, resigned.

Food Handlers Educational Program.—Arrangements are being made by the Jacksonville Health Department, in cooperation with the state and county department of vocational education, to start a perpetual food handlers educational program the early part of September. The program will be a twelve hour course, comprising six meetings each two hours in length and is designed to meet the practical needs of food handlers.

ILLINOIS

Chicago

Anton Carlson Honored.—The July issue of *Gastroenterology*, the official journal of the American Gastroenterological Association, was dedicated to Dr. Anton J. Carlson, recipient of the association's Friedenwald Medal for 1944 and emeritus professor of physiology, University of Chicago School of Medicine, since 1940. In addition to carrying scientific material, the journal includes editorial tributes to Dr. Carlson.

University News.—Major General George F. Lull, deputy surgeon general, U. S. Army, will be the principal speaker at the graduation exercises for the class of 1944 at Northwestern University Medical School in Thorne Hall, September 14, at 4 o'clock. Admission will be by invitation only. After the exercises the medical division of the alumni association will hold a reception in Thorne Hall for the graduating class, faculty members and their families.

Institute for Hospital Administrators.—The Chicago Institute for Hospital Administrators will be held at International House, University of Chicago, September 11-22. This year for the first time the institute will be conducted by the American College of Hospital Administrators instead of by the American Hospital Association. Dr. Malcolm T. MacEachern will be director of the institute, a position he has held since it was started twelve years ago. Additional information may be obtained from the American College of Hospital Administrators, 18 East Division Street.

Fernel Named in Violation of Drug Act.—Dr. Jean Paul Fernel was named August 21 in a criminal information filed before Federal Judge Michael L. Igoe that charged twenty-three counts of violating the Federal Food, Drug and Cosmetic Act. The action alleged that Dr. Fernel had engaged in a mail order business "purveying medical preparations that the government charges are misbranded," according to newspaper reports. It is further stated that Dr. Fernel was found guilty last November of similar charges (THE JOURNAL, Nov. 27, 1943, p. 849), was sentenced to one year in the county jail and was fined $500. He is said to be now out on bail pending an appeal to the U. S. Circuit Court of Appeals.

KENTUCKY

Tuberculosis Commission Appointed.—Governor Simeon S. Willis on July 31 named a commission of eleven men and one woman to inaugurate Kentucky's first statewide program of tuberculosis treatment and control. Primary task of the commission will be to select sites for five tuberculosis sanatoriums authorized by the 1944 legislature. Initial phases of the program will be financed by $1,500,000 which the legislature ordered taken from the state treasury's surplus and invested in war bonds until contracts can be let for construction work. Three members of the commission are Drs. Gaithel L. Simpson, Greenville; Omer F. Hume, Richmond, and Carl C. Howard, Glasgow. Eight members were named from the public at large. Dr. Philip E. Blackerby, Louisville, commissioner of health of Kentucky, was named to a four year term by virtue of his office. Members draw no pay or personal expenses. The 1944 act divided the state into six districts and specified that a sanatorium must be located in each of them, excepting only the Louisville district, which is already served by the State Tuberculosis Sanatorium (Hazelwood), Louisville. The five remaining districts are drawn to serve the west, north, northeastern, southeastern and south central sections of the state. The commission has the authority to acquire land and should select cites best suited for the purpose. It must report to the governor after ninety days of appointment, but the time can be extended if necessary.

MARYLAND

Institute of Alcoholism.—The National Committee on Alcohol Hygiene, in conjunction with a Baltimore sponsoring committee, will hold an institute on alcoholism in Baltimore, September 14. Three group sessions will be devoted to "The Effects of Alcohol on the Individual" by Dr. Robert V. Seliger, Baltimore; "New Approaches to Understanding the Alcoholic" by Victoria Granford, psychotherapist, Catonsville, Wilson Shaffer, Ph.D., Baltimore, and Dr. Lawrence F. Woolley, Towson, and "Alcoholism and Crime" by Robert M. Lindner, Ph.D., U. S. Public Health Service. At an evening session the speakers will be Dr. Seliger on "Alcoholics Are Sick People"; Lawrence Kolb, assistant surgeon general, U. S. Public Health Service, "Alcoholism as Viewed by the U. S. Public Health Service," and Dr. Haven Emerson, New York, "Alcoholism and Public Health."

MICHIGAN

Course on Postwar Diseases.—The University of Michigan School of Public Health, Ann Arbor, will conduct a course on postwar diseases for public health workers in the Middle West, September 20-22. On the first day virus diseases, particularly influenza and poliomyelitis, will be discussed by Dr. Thomas Francis Jr., University of Michigan Medical School, Ann Arbor, and director of the commission on influenza, U. S. Army; Dr. Don W. Gudakunst, New York, medical director of the National Foundation for Infantile

Paralysis; Major Albert B. Sabin, M. C.; Dr. John R. Paul, Yale University School of Medicine, New Haven, Conn., and Dr. Franklin H. Top, medical director of Herman Kiefer Hospital, Detroit. Exotic and tropical diseases will be discussed during the next two days by Brig. Gen. Leon A. Fox, field director of the U. S. Typhus Commission. Malaria will be discussed by Comdr. Lowell T. Coggeshall (MC) and Major Stanley B. Freeborn, M. C., and dysentery by Albert V. Hardy, surgeon, U. S. Public Health Service, and Dr. George D. Cummings, Lansing. Other speakers will include Dr. Joseph G. Molner, deputy health commissioner of Detroit, who recently returned from Mexico and Central America, on tropical diseases and Dr. Haven Emerson, New York, chairman of the committee on communicable diseases of the American Public Health Association, who will give a preliminary report on the activities of this group.

Fluorine Program in Michigan.—Grand Rapids has been chosen for a carefully controlled experiment in dental caries under the auspices of the Michigan Department of Health, U. S. Public Health Service and the University of Michigan School of Dentistry. The experiment will include the addition of 1 part per million of sodium fluoride to a municipal water supply artificially to determine whether a reduction can be made in dental caries. A careful clinical and bacterial examination of the saliva of Grand Rapids school children will first be made to establish a base line before the fluorine is put in the water. According to Dr. William DeKleine, state health commissioner, it is now generally accepted that the number of Lactobacillus acidophilus organisms found in the saliva is also an accurate diagnostic index of the activity of dental caries in that mouth. Areas having fluorine naturally in the municipal water have a much lower bacterial count. This study stems from the belief that mottled enamel occurring in certain areas of the country is caused by fluorine in the drinking water and causes the mottling only when the crowns of teeth are forming. Investigation showed much less dental caries in these areas than where there is no fluorine or only a trace in the drinking water. Further studies showed that in areas having from 0.5 to 1 part per million of fluorine in the municipal water supply there was a 50 to 60 per cent reduction in dental caries and yet this amount was not sufficient to cause disfiguring enamel. Studies have been carried out in various sections of the country. The plan to add the fluorine to the Grand Rapids water supply was approved by the city commission on July 31. The city was selected because it has a stable population, an item to be considered in an experiment to be continued over a number of years.

MONTANA

State Medical Election and Meeting.—Dr. Sidney A. Cooney, Helena, was named president-elect of the Medical Association of Montana at its annual meeting, July 14, in Butte, and Dr. James C. Shields, Butte, was inducted into the presidency. Dr. Raymond F. Peterson, Butte, is secretary. The following speakers were included on the program:

Dr. Harry L. Baum, Denver, Foreign Bodies in Air and Food Passages.
Dr. John K. Colman, Butte, Pyogenic Bone Infections.
Dr. Henry E. Michelson, Minneapolis, Common Diseases of the Skin.
Dr. John M. Waugh, Rochester, Minn., Traumatic Injuries of the Abdomen.
Dr. Orville M. Moore Jr., Helena, Exanthema Subitum and Erythema Infectiosum.
Dr. Elna M. Howard, Miles City, Erythroblastosis.
Dr. Coran L. Bourdeau, Missoula, Surgical Indication in Gastric Lesions.
Dr. Chester W. Lawson, Glasgow, Experiences in China.
Dr. Earl L. Hall, Great Falls (subject not announced).

NEBRASKA

Dean Poynter Honored.—On July 15 the faculty and alumni of the University of Nebraska College of Medicine, Omaha, gave a dinner in honor of Dr. Charles William M. Poynter, dean of the medical school, in recognition of his seventieth birthday. Col. Edgar V. Allen, M. C., medical consultant of the Seventh Service Command, a graduate of the Nebraska medical school in 1925, was the toastmaster.

NEVADA

Mines Hospital Closed.—On August 15 the Tonopah Mines Hospital, Tonopah, was closed and the buildings and equipment merged into the Nye County Hospital. The action was taken after the closing of all gold and silver mines as nonessential war industries and the resignation of Dr. Robert R. Craig, medical director of the hospital for more than twenty-five years. Dr. Joseph H. Coogan, recently appointed county physician and health officer, will be in charge of the newly reorganized Nye County Hospital.

NEW JERSEY

Narcotic Violation.—Dr. Joseph L. Polizzotti, Paterson, pleaded guilty in the U. S. District Court at Trenton July 14 to a violation of the federal narcotic laws and paid a fine of $500.

Illegal Practitioner's Fine Increased.—On August 11 the state supreme court ordered the first district court of Jersey City to amend a judgment fining George H. Coleman $200 on a charge of practicing medicine without a license in Kearny by increasing the fine to $500. The supreme court's action resulted from an appeal by the state board of medical examiners, which filed the original charge against Coleman and contended that the higher fine should have been imposed because the offense was his second, according to the New York *Times*.

NEW MEXICO

Personal.—Judson D. Dowling, senior surgeon of the United States Public Health Service Reserve, has been assigned to the New Mexico Department of Public Health as assistant state director of health.

New Mexico Joins Rocky Mountain Medical Journal.—Arrangements have been completed by which the *Rocky Mountain Medical Journal* will be the official journal of the New Mexico Medical Society. Dr. Carl H. Gellenthien, Valmora, is to be the editor for New Mexico.

State Medical Election.—Dr. Charles A. Miller, Las Cruces, was named president-elect and Dr. Carl H. Gellenthien, Valmora, was installed as president of the New Mexico Medical Society at its annual meeting recently. Dr. Leo B. Cohenour, Albuquerque, is secretary. The next annual meeting will be held in Santa Fe some time in June 1945.

NEW YORK

Poliomyelitis Delays Opening of Schools.—Opening of Hornell public schools, originally scheduled for September 5, has been postponed until October because of the infantile paralysis epidemic, the Rochester *Times-Union* reported August 22. At the time of the report Rochester had 39 patients under treatment, 21 of whom were city residents.

Special Lectures.—Dr. Orren D. Chapman, professor of bacteriology and parasitology, Syracuse University College of Medicine, Syracuse, addressed the St. Lawrence County Medical Society, August 17, in Gouverneur on "Tropical Diseases." Dr. Paul C. Clark, assistant professor of clinical medicine at Syracuse, addressed the Madison County Medical Society at Sylvan Beach, August 10, on "Penicillin Therapy." Both lectures were part of a cooperative project between the state medical society and the state department of health.

New York City

Dr. Lasersohn Named Assistant to President at Winthrop.—Dr. Martin Lasersohn, medical director of the Winthrop Chemical Company, has been appointed assistant to the president and assistant treasurer of the company. He has also been elected secretary of Fairchild Brothers and Foster, a Winthrop subsidiary. Dr. Lasersohn has been associated with the company since 1930.

Sentenced as Abortionist.—Dr. Stephen A. Leslie was sentenced July 18 in General Sessions to a one year term in the penitentiary as an abortionist, the New York *Times* reported. It was stated that Judge George L. Donnellan had denounced him as a refugee who had abused the privileges extended to him in America by operating an abortion mill at 993 Park Avenue for several years.

Ivan Hall Named Professor of Bacteriology.—Ivan C. Hall, Ph.D., since 1942 director of the central laboratory, contaminated wound project, subcommittee of surgical infections, National Research Council, formerly professor and head of the department of bacteriology and public health in the University of Colorado School of Medicine, Denver, has been appointed professor and chairman of the department of bacteriology at the New York Medical College, Flower and Fifth Avenue Hospitals. He will succeed Laura Florence, Ph.D., who will retire in September.

Personal.—Thomas P. Fleming, M.S., librarian of the Columbia University College of Physicians and Surgeons, has been appointed assistant director of the libraries of the university.——Dr. George T. Pack was recently decorated by the president of Chile with the title of Grand Official of the Order of Merit.——Frank S. Lloyd, Washington, D. C., executive officer of the Committee on Physical Fitness of the Federal Security Agency, has been appointed chairman of the depart-

ment of hygiene of the College of the City of New York, succeeding Frederic A. Woll, Ph.D., who retired on account of age on August 31.

NORTH DAKOTA

New Director of Maternal and Child Hygiene.—Dr. Frederick G. Gunlaugson, Fergus Falls, Minn., has been appointed director of maternal and child hygiene of the North Dakota State Department of Public Health, succeeding Dr. Mary E. Soules, Dickinson, who resigned. Dr. Gunlaugson graduated at the University of Minnesota Medical School, Minneapolis, in 1935 and received his master of public health degree from Johns Hopkins.

Free Plasma for the Public. — The state legislature recently appropriated a fund to set up and finance a free plasma service under the direction of the director of the division of laboratories of the state department of public health in cooperation with the University of North Dakota, Grand Forks. Donor clinics are to be set up throughout the state with a mobile unit from the health department conducting clinics in each community. All donors are given a blood donor certificate indicating that its possessor has rendered a public service in the state by giving blood. Complete coverage of the state with normal supplies is the first objective of the program. Each package sent out into the state will contain one bottle of dried pooled normal human plasma, one bottle of 0.1 per cent citric acid solution for restoration of the plasma, a complete set of equipment for administering plasma, and directions for its use. The service is available free of charge to every one in the state.

OHIO

New Chairman of Anatomy.—Ralph A. Knouff, Ph.D., professor of anatomy at the Ohio State University College of Medicine, Columbus, since 1932, has been appointed chairman of the department.

License Suspended.—The license to practice medicine in Ohio of Dr. Ward C. Bell, formerly of Cleveland, has been suspended indefinitely. Dr. Bell was convicted of criminal abortion and served an indeterminate sentence in the Ohio Penitentiary, it is reported.

Physicians Honored.—The Portage County Medical Society gave a dinner recently in honor of two of its members, Drs. Lucius W. Prichard, Ravenna, and Joseph H. Krape, Kent. Dr. Prichard has completed fifty-four years of practice in Ravenna and Dr. Krape fifty years at Kent. Dr. Bernard H. Nichols, Ravenna, was toastmaster at the dinner.

Memorial for World War Physicians. — The Toledo Academy of Medicine has recommended the construction of a memorial building as a testimonial to the physicians of Toledo who served with the armed forces of the United States in World Wars I and II. The *Journal* of the Michigan State Medical Society reports that an assessment of $300 per member for a new memorial building or $150 per member for remodeling the present home of the academy of medicine is being presented to the membership for decision.

SOUTH DAKOTA

Sioux Falls Health Officer Goes to California.—Dr. Francis H. Redewill Jr. has resigned as director of the Sioux Falls health department to accept a position as venereal disease control officer of the Los Angeles County Health Department. He will be succeeded by Dr. Emil G. Ericksen, who once was health officer of Sioux Falls and who for the last year has been assistant to Dr. Redewill, according to the *Journal-Lancet*.

TENNESSEE

The Haggard Lecture.—Dr. Alfred Blalock, professor of surgery, Johns Hopkins University School of Medicine, Baltimore, and formerly professor of surgery at Vanderbilt University School of Medicine, Nashville, recently delivered the annual Haggard Memorial Lecture at Vanderbilt on "Recent Advances in Surgery."

Walter Garrey Made Professor Emeritus.—Dr. Walter E. Garrey, professor and head of the department of physiology, Vanderbilt University School of Medicine, Nashville, retired June 30 with the title professor emeritus. According to an announcement from Dr. Waller S. Leathers, dean of the medical school, July 31, Dr. Garrey's successor had not yet been selected.

Personal. — Marion Murphy Brooke, Sc.D., associate in parasitology at the School of Hygiene and Public Health of the Johns Hopkins University, Baltimore, has been appointed associate professor of preventive medicine at the University of Tennessee College of Medicine, Memphis.——Dr. James K. P. Blackburn, Pulaski, has been named a member of the state basic science board, succeeding Dr. Waller S. Leathers, Nashville, who resigned recently.

WEST VIRGINIA

State Meeting in Clarksburg.—The seventy-eighth annual meeting of the West Virginia State Medical Association will be held at Clarksburg, May 14-15, 1945. The Waldo, Stonewall Jackson and Gore have been designated the convention hotels. Technical and scientific sessions will be held at the Waldo Hotel.

Educational Consultant in Cancer Control. — Mrs. Marian Patrick Hart, assistant chief of the division of social service in the state department of public assistance, Charleston, has been appointed educational consultant in the state division of cancer control, effective September 1. The appointment is a part of the expanded program of cancer control financed by the state legislature and recently inaugurated with the appointment of Dr. Paul R. Gerhardt as director (THE JOURNAL, March 4, p. 660).

Poliomyelitis Quarantine Modified. — To permit poliomyelitis patients to receive early treatment in hospitals suitably equipped, Dr. John E. Offner, Weston, state health commissioner, has modified the regulation requiring three weeks' quarantine to permit the immediate transfer of patients from their homes to a hospital. The order will continue in force until November 1. Written permission must be obtained from the local health officer or state health department before a patient may be moved from one county to another. Thirty-eight cases of poliomyelitis were reported to the state department of health from July 1 to August 16.

WYOMING

George Baker Named Acting Secretary of State Society.—Dr. George E. Baker, Casper, has been appointed acting secretary of the Wyoming State Medical Society during the illness of Dr. Marshall C. Keith, secretary. Dr. Keith was taken ill July 1 and will not be able to resume his activities for a while.

GENERAL

College of Surgeons Cancels Meeting.—The American College of Surgeons, on action of its board of regents, has canceled its annual clinical congress because of the acute war situation that has developed, involving greater demands than at any time in the past on our transportation systems for the carrying of wounded military personnel, troops and war material. The congress was to have been held in Chicago, October 24-27.

Meeting of Obstetricians, Gynecologists and Abdominal Surgeons.—The fifty-sixth annual session of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons will be held at the Homestead, Hot Springs, Va., under the presidency of Dr. Willard R. Cooke, Galveston, Texas (THE JOURNAL, August 12, p. 1051). Features of the meeting will include a series of motion pictures and a banquet address by Hon. Dave E. Satterfield Jr., member of Congress from Virginia. There will be a golf tournament on Saturday, September 9, at which the play will be for the President's Trophy, given in 1938 by Dr. Paul Titus, Pittsburgh, then president of the association. Dr. James R. Bloss, 418 Eleventh Street, Huntington, W. Va., is the secretary of the association.

Wisconsin Foundation Wins Court Reversal.—A United Press dispatch from San Francisco August 24 stated that the U. S. Circuit Court of Appeals the previous day had withdrawn an opinion handed down June 30, 1943 invalidating patents of the Wisconsin Alumni Research Foundation involving the treatment of rickets with vitamins. The court held at the time that vitamins, being derived from the sun, could not be patented, according to the Chicago *Daily News*. In contradiction of this opinion the foundation in August 1943 asked for a rehearing of the case, which charged a Los Angeles company with infringement of the patents, it was stated. No explanation was given for the withdrawal, which was said to be almost unprecedented in court procedure, the *News* reported.

Special Society Elections.—Dr. William H. Daniel, Los Angeles, was elected president of the American Proctologic Society at its annual meeting in Chicago, Dr. Joseph W. Ricketts, Indianapolis, vice president, and Dr. Harry E. Bacon, Philadelphia, secretary. The next annual meeting of the society will be held in New York preceding the annual

session of the American Medical Association.——Dr. Claude S. Beck, Cleveland, was chosen president of the American Association for Thoracic Surgery at its annual meeting in Chicago recently. Dr. Isaac A. Bigger, Richmond, Va., is vice president and Lieut. Col. Richard H. Meade Jr., M. C., Memphis, Tenn., secretary.——Dr. S. Judd Beach, Portland, Maine, was chosen president of the American Ophthalmological Society at its annual meeting in Hot Springs, Va., recently. Dr. Walter S. Atkinson, Watertown, N. Y., is secretary. The next annual meeting will be held in Hot Springs, Va., June 6-8, 1945.

New Group for Rheumatic Fever.—The Council on Rheumatic Fever has been formed to focus attention on the problem of rheumatic fever. Organizations comprising membership in the new council include the American Medical Association, American College of Physicians, American Rheumatism Association, American Academy of Pediatrics, American Public Health Association, American Hospital Association, American Association of Medical Social Workers, American Nurses Association and the American Heart Association. The establishment of the new group stemmed from action taken at a conference on rheumatic fever in New York, January 26-27, at which representatives from the various military services and nationally interested groups agreed that a concentrated program on rheumatic fever should be instituted. The American Heart Association, under whose authority the creation of the new group was placed, announces that a suggestion has been made to incorporate the council as an independent organization under the laws of New York state. It is hoped that a fund of $50,000 will be obtained within the near future to justify the selection of a director, the rental of offices and the employment of an office staff. Currently about $7,000 is available, while another $5,000 is expected soon. Negotiations are in progress with officers of the American Legion in the hope that the Legion may accept the responsibility for the financial support of the council on a national scale.

Joint Meeting of Radiologists.—A joint meeting of the American Roentgen Ray Society and the Radiological Society of North America will be held at the Palmer House, Chicago, September 24-29, under the presidency of Drs. Sherwood Moore, St. Louis, and Eldwin R. Witwer, Detroit, respectively. Among the speakers will be:

Drs. Herman L. Kretschmer, President, American Medical Association, and Fay H. Squire, Chicago, A Study of the Ureters in Bladder Neck Obstructions.
Col. Byrl R. Kirklin, M. C., representing Surgeon General Norman T. Kirk of the Army (subject not announced).
Lieut. Comdr. Robert K. Arbuckle (MC), representing Surgeon General Ross T. McIntire of the Navy, Lieut. C. Hunter Shelden (MC) and Lieut. Robert H. Pudenz (MC), Pantopaque Myelography: Correlation of Roentgenological and Neurosurgical Findings.
Drs. Joseph George Tephick and Alison H. Price, Philadelphia, Progressive Bilateral Bullous Emphysema.
Dr. John Robert Andrews, Cleveland, and Capt. Robert O. Turek, M. C., Planigraphy: An Evaluation of the Method in the Diagnosis of Cancer of the Lower Respiratory Tract.
Dr. Robert G. Bloch, Chicago, Roentgenological Aspect of Tuberculous Calcification: A Clinical and Experimental Study.
Dr. Arbor D. Munger, Lincoln, Neb., Testicular Irradiation in Carcinoma of the Prostate.
Major Milton Friedman, M. C., and Lieut. Col. Lloyd G. Lewis, M. C., An Improved Technic for the Treatment of Carcinoma of the Testis.
Dr. Russell L. Haden, Cleveland, Hematological and Clinical Characteristics of Leukemias.
Drs. Ross Golden and Paul H. Ducharme, New York, X-Ray Demonstration of Cecal Deformity in Amebiasis.
Drs. Percival Bailey and Theodore J. Wachowski, Chicago, Roentgen Therapy for Brain Tumors.
Dr. William Gayle Crutchfield, University, Va., Neurosurgical Treatment of Patients with Advanced Malignant Disease.
Dr. Dallas B. Phemister, Chicago, Subcortical Cystlike Lesions of Joints.
Drs. Laurence L. Robbins and Clayton H. Hale, Boston, Roentgen Appearances in Collapse of the Lung and Its Subdivisions: Preliminary Report.
Drs. Howard B. Hunt and Donald H. Breit, Omaha, Postirradiation Cutaneous Necrosis: A Study of Its Mechanism, Course and Treatment.
Lieut. Henry L. Jaffe (MC), Evaluation of Roentgen Therapy for Filariasis.

Dr. Lawrence Reynolds, Detroit, will deliver the Caldwell-Carman Lecture on Tuesday.

Medical Section of A. A. A. S. Meeting.—Section N, the medical section of the American Association for the Advancement of Science, will hold a joint meeting September 12 with the American Society of Parasitologists and the American Society of Zoologists. The session will be held in the Academy of Medicine of Cleveland and will be devoted to a symposium on "Parasitology in Relation to the War." Another joint session of the section with the section on engineering (M) will be a symposium on "Aviation Medicine." On Thursday a joint session will be held with Alpha Epsilon Delta, national honorary premedical fraternity, on "Premedical Education." Among the speakers in the symposium on "Parasitology in Relation to the War" will be:

Brig. Gen. James S. Simmons, M. C., The Wartime Importance of Tropical Diseases.
Major Oliver R. McCoy, M. C., Malaria and the War.
Clay G. Huff, Sc.D., and Frederick Coulston, Ph.D., University of Chicago, The Development of Malarial Sporozoites in the Vertebrate Host.
Dr. Harold W. Brown, Columbia University College of Physicians and Surgeons, New York, Filiariasis.
Dr. Rolla E. Dyer, National Institute of Health, Bethesda, Md., Typhus Fever.
Walter E. Dove, Sc.D., U. S. Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Washington, D. C., Development of Louse Powders for the Armed Forces.
Benjamin Schwartz, Ph.D., U. S. Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C., Parasites in Relation to Production of Meat and Other Animal Products in Wartime.

On Friday September 15 a symposium on science and the press, sponsored by the National Association of Science Writers, will be presented at the Hotel Statler by Louis B. Seltzer, editor of the Cleveland *Press;* Martin J. Porter, New York, editor of the *American Weekly;* George E. Pendray, Pittsburgh, assistant to the president of Westinghouse Electric & Manufacturing Company, and Dr. Morris Fishbein, Editor of THE JOURNAL. Robert D. Potter, science editor of the *American Weekly* and president of the National Association of Science Writers, will preside and Dr. Anton J. Carlson, Chicago, president of the American Association for the Advancement of Science, will give the introductory remarks. These meetings will be held during the session of the A. A. A. S. in Cleveland, September 11-16.

CANADA

Personal. — Dr. Lorimer J. Austin, professor of surgery, Queen's University Faculty of Medicine, Kingston, Ontario, recently was presented with the Montreal medal "for meritorious contribution to the honour of Queen's." The medal is awarded occasionally by the Montreal alumni of the university.

Course in Tropical Medicine.—McGill University Faculty of Medicine, Montreal, Quebec, is offering for the first time a diploma course in tropical medicine. The course is also suggested as a refresher course for medical graduates who have been working in the tropics and who wish to take advanced work in parasitology and other branches of tropical medicine. The course is divided into three units: tropical medicine and parasitology, care of ambulatory patients and one in which facilities have been arranged for clinical experience in the tropics. Thomas W. M. Cameron, D.Sc., professor of parasitology at McGill, is in charge of the course.

LATIN AMERICA

Health Activities in Latin America.—*Medical Center.*—The Anglo-American Caribbean Medical Center was opened in July, Port-of-Spain, Trinidad. The establishment of the center is an initial step in the program fostered by the Anglo-American Caribbean Commission to raise health standards in the West Indies.

Committee to Control Sandfly.—Dr. Henry C. Dooling, chief health officer of the Panama Canal Health Department, has appointed a committee to devise a program for the relief and protection of residents from the sandfly (Phlebotomus). The sandfly is the carrier of numerous diseases, but in Panama it is known to transmit only the American cutaneous leishmaniasis. The committee is composed of a health officer, a sanitary engineer, a physician, an epidemiologist and an entomologist.

Personal.—Clarence H. Waring, medical director, U. S. Public Health Service, has recently succeeded Dr. Henry A. Holle as chief quarantine officer of the Panama Canal Health Department. Dr. Holle has left Panama for a new assignment in New York.——Dr. Fernando D. Gómez, Montevideo, was recently appointed rector of the Instituto de Tisiología of the Faculty of Medicine of Montevideo, succeeding Dr. Juan B. Morelli, who recently retired.——Dr. Juan A. Sánchez was recently appointed honorary member of the Asociación Médica Argentina.——Announcement is made of the first anniversary of the death of Dr. Nicolas A. Solano, which was commemorated in special services at Herrera Cemetery, Panama City, July 23. The observance was conducted by the National Liberal Party, of which the late physician was said to have been national chairman at one time.

CORRECTION

Spontaneous Rupture of Aorta.—In the article by Dr. Douglas Symmers entitled "Spontaneous Rupture of the Aorta in Syphilitic Aortitis with Aneurysm," in the August 12 issue, page 1035, the word "with" in the title should read "without."

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 29, 1944.

The Radical Reform of Medical Education

In October 1941 the minister of health announced the intention of the government to inquire into the organization of medical schools, particularly with regard to facilities for clinical teaching. A small committee consisting mainly of leading teachers was appointed. It examined witnesses representing all the medical schools and others interested in medical education, including such Americans in this country as Professor Cutler and Col. William S. Middleton. The result is an elaborate report of 300 pages, in which every aspect of the subject is discussed.

Properly planned and carefully conducted medical education is held to be the essential foundation of a comprehensive health service. The national policy should be to secure for every one the highest possible standard of physical and mental health, the report says. Physicians must bear much of the responsibility for attaining this goal, and graduate and postgraduate training must impart the necessary knowledge to physicians. The present system of medical education is held to be seriously deficient in this respect. To the neglect of the promotion of health, medical practice—and consequently medical education—has been concerned primarily with disease chiefly as it affects individuals. A radical reorientation of medical education and practice is essential, the committee believes. One of the basic proposals is that throughout undergraduate and postgraduate education emphasis must be placed on acquisition of a sound knowledge of all measures that may make and preserve a healthy nation.

Although the nation is justified in taking pride in the reputation of British medical practice and traditional methods of education, there is urgent need for improvements, it is held. The training of the undergraduate should provide a university education on broad and liberal lines. The essential unity of medicine should be observed throughout, and the teaching should be so organized that the whole course becomes a smooth and logical development. While primarily practical, the training should give a clear understanding of the constantly developing scientific basis of medicine. The main emphasis should be on fundamental principles rather than on the mass of purely factual knowledge, the committee states.

The unit of organization for undergraduate education should be a medical teaching center consisting of a university medical school and a group of teaching hospitals and clinics of the district health service. A new pattern of staffing is believed to be necessary; more whole time appointments and salaries for clinical teachers in consideration of well defined duties are proposed. A medical school admitting the optimum number, 100 students a year, should have access to between 950 and 1,000 beds, roughly distributed as general medical 250, general surgical 250, maternity 100, gynecologic 50, children 100, and special departments and beds for special purposes 200 to 250. Major teaching hospitals should be linked by means of their staffs with outlying hospitals, and medical schools, as partners in the national health service, should have a place in the administration of the service. Preclinical scientific subjects should be taught by full time professors and there should be more junior staff members, it is suggested. In the clinical field there should be more full time appointments in all grades. At the earliest possible date every medical school should have a whole time professor in medicine, surgery and obstetrics and gynecology, according to the report.

STUDENTS

The only barrier to admission to a medical school should be unsuitability. Financial assistance should be given to medical students so that young people of ability are not deterred from entering the medical profession. Students should not be selected on the basis of examinations alone. Interviews are essential, and the possible development of aptitude tests is envisaged by the committee. There should be coeducation in all schools, and all hospital appointments should be filled by open competition, without any sex barrier. It is estimated that the places provided for women students should amount to about one fifth of the whole number.

CLINICAL INSTRUCTION

An introductory clinical course of planned scientific instruction, extending over not less than four months, is the best means of effecting a smooth transition from preclinical to clinical study, the report states. A medical student needs a coherently unified knowledge of medicine, which he has to acquire in an atmosphere of specialization and from teachers who, to an increasing extent, will be specialists. The teaching should be organized in five divisions: preclinical studies, pathology, medicine, surgery, obstetrics and gynecology. Under medicine should be included child health, psychiatry and social medicine. Clinical instruction should be continuous throughout the year, with emphasis on basic principles. Special attention should be paid to minor ailments and less to the technical details of surgical operations, the committee feels. There is need for more instruction in social medicine, child health and psychology. The total course up to the final examination should last four and one-half years. After passing, the student should have a junior resident's appointment for twelve months in one or more approved hospitals before admission to the medical register.

POSTGRADUATE EDUCATION

Postgraduate study should be a regular feature of general practice, it is claimed. The provision of periodic intensive refresher courses should be regarded as only a short term expedient. A better policy, according to the committee, is to bring general practitioners, by such means as clinical assistantships, into regular association with the work of hospitals and specialists. For specialists a minimum of four or five years' training after registration is proposed, and trainees should hold salaried appointments at teaching centers or special hospitals. As adequate training in tropical medicine cannot be obtained in this country, it is suggested that, having obtained his theoretical and laboratory instruction here, the student should hold an approved hospital appointment in a tropical country.

Industrial Rehabilitation Center Established by the Ministry of Labor

Much increased attention is now being given to rehabilitation. The Ministry of Labor has opened a center near London for industrial rehabilitation of male patients. It is realized that the complete use of available manpower, so essential for total war, demands the complete utilization of the individual worker. The center follows lines evolved by the army to meet this problem. It is equipped with workshops for various building and engineering occupations, and there are courses for handy men and gardeners, all under a highly qualified teacher. These facilities are used to test suitability for various occupations. The medical officer, who has undergone a course of special instruction, discusses with the manager the aptitude and potential capacity of each man, cooperates with him in the choice of employment and regulates progression of training on medical grounds. He has a staff of medical auxiliaries, including physical therapists. The remedial gymnastics are directed by a senior sergeant instructor of the Army Physical Training Corps, released for the purpose from a military convalescent depot.

Provision is made for entertainment, and particular attention is paid to the proper use of leisure.

The course is of six to eight weeks duration and is active in character. It is therefore not suitable for men in the earlier convalescent stages. On completing the course the men go either directly to employment in a previously held or some other occupation or are transferred to a vocational training center for a course in the new occupation chosen for them. The disabled man is in need of guidance in the choice of his future career, for his previous occupation may have been unsuitable for him. He requires the advice of a physician versed in the many sided aspects of rehabilitation and of an expert conversant with the demands of different industries. The man may regard his disability as the end of all his hope and, left to himself, may drift into unsuitable employment. The psychologic factor is therefore important, and the atmosphere and expert advice of the center are directed toward restoring confidence.

Profits of Proprietary Pills

At the sixteenth ordinary general meeting of Beechams Pills, Limited, it was announced that profits for the year ended March 31 earned by the companies of the group operating in the British Empire and in almost all parts of the world other than Europe amounted to $7,000,000, as compared with $6,000,000 in the previous year. The overseas trade was most satisfactory, the announcement said, and provides encouraging hope for the postwar period. The business commenced over one hundred years ago with the sale of the proprietary pill which gives its name to the company. During the past four years much time has been devoted to the development of overseas trade, it was stated.

PALESTINE

(From Our Special Correspondent)

TEL AVIV, July 14, 1944.

Epidemic of Louse Borne Typhus at the Dead Sea

In November 1943 an epidemic of louse borne typhus broke out among workers employed by the Palestine Potash Ltd. (Arabs from Hedjaz, Transjordan and neighboring countries). Following a positive Weil-Felix reaction in the first 2 cases, all suspected persons were sent to the hospital. All those who had been in contact with them were vaccinated, their personal effects were burned and the whole camp was disinfected. The energetic measures taken by Kupat Holim (the Workers' Sick Fund of the General Federation of Jewish Labor in Palestine), in cooperation with the Hebrew University and the government of Palestine, proved successful. In all, 10 persons occupying tents in the vicinity of the first victims contracted the disease. The last case occurred on Dec. 20, 1943. All the patients were in an undernourished condition and their standards of hygiene were at a low level. Two of the patients died.

Allergy in Palestine

Dr. I. Gutman of Jerusalem gives a survey of the condition of allergy in Palestine in the *Palestine and Near East Medical Journal* of December 1943 as follows:

About 3 per cent of the Jewish population of Palestine suffer from allergic diseases (major allergy), a figure far short of 10 per cent of the number submitted by American authors for America and somewhat lower than in Europe. In the Arab section of the population as well allergic diseases are of widespread occurrence. The most impressive factor which distinguishes Palestinian from European observations is the high proportion of susceptible children; the percentage in the preschool age group in Palestine is more than twice as high as in Europe.

The distribution of allergic diseases in the various organs shows that bronchial asthma and vasomotor rhinitis account alike here and in Europe for more than 50 per cent of all allergic patients. The main causative factors are "climate allergens," i. e. molds and fungi, in the humid warm atmosphere of the coastal regions. Skin diseases amount to about 25 per cent, excluding scrofula of infants. Allergic intestinal disturbances appear twice as often as in Europe, even without the colitis. This number is certainly still higher, considering that there are about three times as many sufferers from colitis in Palestine as from asthma. Hay fever appears less frequently, but then this illness is still little known here. Conjunctivitis vernalis (spring catarrh) is often encountered.

Extension of Hospital Accommodation in Haifa

Palestine has for many years suffered from a severe shortage of hospital accommodation, particularly in the Haifa district.

For every thousand persons in the Jewish section of the population of the country the available bed strength in the various districts of the country is as follows:

	Beds
In Jerusalem and vicinity	5.1
In Tel Aviv and the south of Palestine	1.4
In Haifa and vicinity	0.9
In the plain of Esdraelon and Galilee	2.7

Haifa is a port town and the center of heavy industry, as well as the gathering place of large numbers of new immigrants. The hospital which serves the Jewish community of Haifa has only small departments for surgery, maternity and children. For Haifa and its vicinity, which has a Jewish population of over 70,000, not a single hospital bed is available for internal diseases. In view of this situation the Kupat Holim (Sick Fund of the General Federation of Jewish Labor in Palestine) felt bound to purchase a building and adapt it as a small hospital, containing 40 beds. The cost of this building, with its renovation and equipment, will amount to $125,000. Most of the beds will be devoted to cases of internal diseases. In accordance with an agreement arrived at with the Jewish Community Council of Haifa, it will admit Haifa residents even though they may not be members of Kupat Holim.

Medical Aid to the Red Army

The executive committee of the General Federation of Jewish Labor in Palestine, through its representative in London, has presented to the Russian ambassador, Mr. Maisky, the sum of £P 10,000 for the purchase of two fully equipped ambulances for the Red Army. At present a new shipment is being prepared of medically equipped field boxes, which, as the Soviet medical institutions have requested, contain medical instruments and materials for the use of doctors at the front. The nearer the Red armies approach the great day of victory, the more efficient becomes the service of the doctor who is equipped with a field box containing all the required appliances and instruments to render first aid to the wounded soldiers on the front.

Marriages

JOE LEE FRANK JR., Richmond, Va., to Miss Barbara Olive Bloxam of Roxboro, N. C., in Fayetteville, N. C., July 14.

EDWARD ARTHUR SHORTEN, Youngstown, Ohio, to Miss Mary Virginia Williams of Albion, Ill., July 8.

JOHN KELLER GRIFFITH JR., Slidell, La., to Miss Elizabeth Theriot of Gueydon in New Orleans, July 6.

WILLIAM E. SANDERS, Long Beach, Calif., to Miss Blanche Calvert of Des Moines in Pasadena, July 16.

ARTHUR SELDON MANN, Alton, Ill., to Lieut. Mildred Wiles of Seattle in England, July 14.

JOHN C. GLENN JR., Durham, N. C., to Miss Mary Eliza Ezzell of Rose Hill, July 7.

JAMES R. DWYER, Renovo, Pa., to Miss Anne Norton of Baltimore, July 24.

JOHN P. CREWS, Inverness, Miss., to Miss Nancy Curry in Knoxville, July 4.

Deaths

Willis Elliott Bowen ✠ Rochester, N. Y.; Cornell University Medical College, New York, 1902; also a pharmacist; past president of the Rochester Academy of Medicine; member of the Rochester Hospital Council, Inc., and the Rochester Hospital Service Corporation; fellow of the American College of Surgeons; served during World War I; formerly on the staff of the Rochester City Hospital, now known as the Rochester General Hospital; a founder, one of the original board of directors, which he had served as president since March 1934, member of its executive committee and formerly chief of the surgical staff, Park Avenue Hospital, where he died July 11, aged 72, of Parkinson's disease, gallstones and diabetes mellitus.

Robert Lee Russell, Weaverville, N. C.; Columbian University Medical Department, Washington, D. C., 1901; joined the U. S. Indian Service, serving as agency and field physician at Rosebud, S. D., as agency physician at Anadarko, Okla., and as superintendent of the Sac and Fox Sanatorium, Toledo, Iowa; later chief of health in the Indian Service, stationed at Washington, D. C.; transferred to the Veterans Administration in 1920, from which he retired in 1940; formerly chief of the tuberculosis and general medical service at the Veterans Administration Facility in Oteen; served on the staffs of the U. S. Veterans hospitals in Fort Bayard, N. M., and Fort Lyon, Colo.; died in Asheville June 28, aged 73.

Richard Fenner Yarborough, Louisburg, N. C.; Columbian University Medical Department, Washington, D. C., 1898; honorary member of the Medical Society of the State of North Carolina; past president and secretary of the Franklin County Medical Society; a captain in the medical corps of the U. S. Army during World War I; formerly physician to the North Carolina State College for Agriculture and Engineering and member of the board of directors of the State Hospital in Raleigh; served as a member of the board of health of Franklin County and as county health officer; died June 22, aged 72, of coronary occlusion.

Percy Daniel Moulton ✠ Colonel, U. S. Army, retired, Los Angeles; Jefferson Medical College of Philadelphia, 1907; graduated from the School for Flight Surgeons in 1921 and the Air Service Primary Flying School in 1925; served during World War I; entered the medical corps of the U. S. Army as a captain on Sept. 14, 1920 and later promoted to major, lieutenant colonel and colonel; retired Dec. 31, 1939; at one time instructor in pediatrics at his alma mater and on the staff of the Jefferson Hospital, Philadelphia; died in the Hoff General Hospital, Santa Barbara, Calif., Dec. 24, 1942, aged 61, of myocardial infarction.

William J. Blackburn ✠ Dayton, Ohio; Pulte Medical College, Homeopathic, Cincinnati, 1900; University of Michigan Homeopathic Medical School, Ann Arbor, 1915; member of the American Academy of Ophthalmology and Otolaryngology; past president of the Ohio State Homeopathic Medical Society, Southern Homeopathic Medical Society and the Dayton Ophthalmological and Laryngologic Society; fellow of the American College of Surgeons; for many years a member of the staff and of the board of trustees of Miami Valley Hospital and a lecturer at the hospital's school of nursing; died July 16, aged 75.

John Joseph Sweeney, Doylestown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1911; member of the Medical Society of the State of Pennsylvania; served overseas during World War I in the medical corps of the U. S. Army and was honorably discharged with the rank of major; for many years Bucks County coroner; chief burgess of Doylestown; president of the city board of health; past president of the Kiwanis Club of Doylestown and president of the Second World War Memorial Committee; physician at the Bucks County Prison; died June 27, aged 57.

Leonard Francis Logiodice, Belchertown, Mass.; College of Physicians and Surgeons, Boston, 1920; member of the American Association on Mental Deficiency; served on the staffs of the Grafton State Hospital, North Grafton, and the Boston Psychopathic Hospital; received by the Pope in 1933; awarded two certificates of appreciation from the President for services rendered in the administration of the Selective Service System, local board number 34, Massachusetts; assistant physician on the staff of the Belchertown State School; died August 1, aged 56.

Frank Newton Wells, Pittsfield, Ill.; Chicago Homeopathic Medical College, 1895; member of the Illinois State Medical Society; served during World War I; lieutenant colonel in the medical reserve corps, not on active duty; past president and secretary of the Pike-Calhoun Counties Medical Society; at one time president of the school board of Cortland and Kirkland, Ill.; served as alderman and mayor of Pittsfield; for many years city and county physician; honorary member of the staff of the Illini Community Hospital; died June 27, aged 75.

Roy Wood Adkins, Fort Lauderdale, Fla.; Starling-Ohio Medical College, Columbus, 1911; member of the Ohio State Medical Association; died May 27, aged 57, of coronary heart disease.

Elias Marion Akins, Etowah, Tenn.; Chattanooga Medical College, 1903; died in Asheville, N. C., June 22, aged 70, of pulmonary tuberculosis.

James Ulysses Allen, Benton Harbor, Mich.; Rush Medical College, Chicago, 1923; member of the Michigan State Medical Society; served with Hospital Corps, 370th Infantry, American Expeditionary Forces, during World War I; served on the staff of St. Joseph Sanitarium, St. Joseph, and on the courtesy staff of the Mercy Hospital; died in the Provident Hospital, Chicago, July 4, aged 52, of cardiorenal disease.

Elsworth Frederick Arble, Carrolltown, Pa.; Baltimore Medical College, 1898; member of the Medical Society of the State of Pennsylvania; at one time first vice president of the Cambria County Medical Society; formerly a member of the board of health of Carrolltown and the school board; served during World War I; an organizer, former president of the board and staff member of the Miners' Hospital, Spangler, where he died July 5, aged 71, of hypertensive heart disease.

Wesley Lewis Boyden, Brillion, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; served overseas with the Thirty-Second Division, 127th Infantry Medical Unit, during World War I; for many years city physician of Brillion; formerly chief of staff, St. Mary's Hospital, Green Bay, where he died June 26, aged 56, of acute myocarditis and acute cholecystitis.

Arthur Mario Brianza, Chicago; College of Physicians and Surgeons of Chicago, 1892; at one time member of the city board of health; formerly on the staff of the Cook County Hospital; died at his home in Oak Park, Ill., July 11, aged 76, of angina pectoris.

Alfred William Brinham, Windber, Pa.; College of Physicians and Surgeons, Baltimore, 1905; member of the Medical Society of the State of Pennsylvania; for many years member of the board of health of Scalp Level; served as vice president of the Scalp Level Merchants and Miners Bank until it merged with the Windber Trust Company; died June 22, aged 63, of acute nephritis.

Elias Harry Brubaker ✠ Flora, Ind.; Medical College of Indiana, Indianapolis, 1905; past president and secretary of the Carroll County Medical Society; died in the Home Hospital, Lafayette, June 28, aged 63, of a ruptured bladder following a prostatectomy.

John Thomas Burns ✠ Kalamazoo, Mich.; University of Michigan Medical School, Ann Arbor, 1917; served overseas during World War I; on the staff of the Borgess and Bronson hospitals; died at his summer home in Gull Lake June 25, aged 55, of coronary disease.

David Clark Cather ✠ Medical Director, Rear Admiral, U. S. Navy, retired, Herndon, Va.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; commissioned a lieutenant (jg) in the medical corps of the U. S. Navy on June 9, 1904; later a lieutenant, lieutenant commander, commander, captain and rear admiral; retired Dec. 1, 1942 for incapacity incident to service; fellow of the American College of Surgeons; died in the U. S. Naval Hospital, Corona, Calif., June 25, aged 64, of pulmonary tuberculosis.

John Edward Curtis ✠ Lemmon, S. D.; University of Louisville (Ky.) Medical Department, 1909; superintendent of the Perkins County Board of Health; president of the South Dakota State Public Health Association; died in an Aberdeen hospital May 6, aged 68, of coronary occlusion.

Floren Fred Davis, Clayton, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; member of the Illinois State Medical Society; died June 21, aged 64, of coronary heart disease.

Wirt Adams Duvall, Baltimore; University of Maryland School of Medicine, Baltimore, 1888; formerly chief surgeon

of the state police department and member of the state board of education; died June 17, aged 80, of chronic nephritis, arteriosclerosis and coronary occlusion.

William T. Easley, Houston, Texas; St. Louis College of Physicians and Surgeons, 1883; member of the Illinois State Medical Society and its "Fifty Year Club"; served as president, secretary and treasurer of the Bond County (Ill.) Medical Society; served as second lieutenant in the Fourth Regiment, Company F, Illinois National Guard, when the militia was active in Greenville; formerly coroner of Bond County; at one time member of the board of education in Greenville, Ill.; died June 20, aged 86, of hypostatic pneumonia following a fall.

Eli A. Fisher ✠ Yorkshire, Ohio; Medical College of Ohio, Cincinnati, 1888; past president of the Darke County Medical Society; died in the Wayne Hospital, Greenville, June 28, aged 80, of carcinoma of the stomach.

Samuel Watson Fox, Breton Woods, N. J.; Jefferson Medical College of Philadelphia, 1910; died June 22, aged 66, of cirrhosis of the liver.

Frank Joseph Gallagher, Tucson, Ariz.; University of Wooster Medical Department, Cleveland, 1912; fellow of the American College of Surgeons; served in the medical corps of the U. S. Army during World War I; served on the staffs of St. John's, St. Ann's Maternity and St. Alexis hospitals in Cleveland and St. Mary's Hospital; died June 22, aged 55, of pulmonary tuberculosis.

Pietro Giacchella, Altoona, Pa.; Regia Università di Torino Facoltà di Medicina e Chirurgia, Italy, 1896; one of the founders and member of the staff of the Mercy Hospital; died June 28, aged 79, of cerebral hemorrhage.

Edward Winchester Goodenough, Waterbury, Conn.; Yale University School of Medicine, New Haven, 1893; for many years clinical assistant in pediatrics at his alma mater; member of the Connecticut State Medical Society; formerly commissioner of education in Waterbury, medical inspector of schools, city supervisor and milk and food inspector; served on the staff of the Waterbury Hospital; died in the Masonic Home, Wallingford, July 10, aged 78.

Haynie Melvin Grace ✠ Chillicothe, Mo.; Missouri Medical College, St. Louis, 1891; a member of the chamber of commerce; formerly physician and surgeon to the State Industrial Home for Girls; died in the Major Clinic, Kansas City, June 13, aged 78, of cerebral thrombosis.

John Morton Greene, Falls City, Neb.; University of Louisville (Ky.) Medical Department, 1902; member of the Nebraska State Medical Association; served as president of the Richardson County Medical Society; on the staff of Our Lady of Perpetual Help Hospital; division surgeon for the Missouri Pacific Railroad; died June 10, aged 69, of coronary thrombosis.

Charles Wesley Hall, Mount Vernon, Ill.; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; University and Bellevue Hospital Medical College, New York, 1901; member of the Illinois State Medical Society; served as president of the Southern Illinois Medical Society; a major in the medical corps of the U. S. Army and in charge of an evacuation hospital in France during World War I; died June 21, aged 63, of coronary occlusion.

Helen Willard Ham, Middleboro, Mass.; Tufts College Medical School, Boston, 1906; died April 30, aged 69.

Arthur Graham Harris, Fairfield, N. C.; University of the South Medical Department, Sewanee, Tenn., 1905; died in the Riverside Hospital, Newport News, Va., June 28, aged 67, of cirrhosis of the liver and arteriosclerosis.

Pleasant L. Henderson, Morristown, Tenn.; Bellevue Hospital Medical College, New York, 1896; member of the Tennessee State Medical Association; died June 18, aged 78, of complications attributed to injuries received in an automobile accident.

Edward Herbert ✠ Fall River, Mass.; Columbia University College of Physicians and Surgeons, New York, 1902; formerly district physician for the city of Fall River; died in a local hospital June 26, aged 69, of diabetes mellitus.

Stewart Felteau Hill, Macon, Miss.; University of Alabama School of Medicine, 1912; served during World War I; member of the board of aldermen of Macon; died June 14, aged 57, of carcinoma of the right lung.

Charles Edwin Homan Jr., New Orleans; Johns Hopkins University School of Medicine, Baltimore, 1923; member of the Louisiana State Medical Society; fellow of the American College of Physicians; formerly practiced in Chattanooga, Tenn.; at one time assistant medical director of the Connecticut Mutual Life Insurance Company, Hartford; since January 1943 medical director of the Ochsner Clinic; died July 25, aged 46, of coronary thrombosis.

Robert Pearson Hooper, Kosciusko, Miss.; Memphis (Tenn.) Hospital Medical College, 1913; member of the Mississippi State Medical Association; served during World War I; died in Durant May 20, aged 56.

Arthur West Hopper, Washington, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1909; member of the Medical Society of the State of Pennsylvania; medical director of Washington and Green counties; died in the Western Pennsylvania Hospital, Pittsburgh, June 20, aged 62, of acute myocardial failure.

Mathew Marshall Huling, Winchester, Tenn.; Tennessee Medical College, Knoxville, 1902; for many years chairman of the Republican executive committee of Franklin County; secretary of the Franklin County Election Commission; formerly postmaster of Winchester; killed June 14, aged 71, when the automobile in which he was driving was struck by a truck.

Logan M. Kifer, McKeesport, Pa.; Jefferson Medical College of Philadelphia, 1878; member of the Medical Society of the State of Pennsylvania; died June 8, aged 90, of heart disease.

Adolph Frederick Konther ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1902; consulting physician, Lutheran Hospital; died June 19, aged 78, of coronary thrombosis.

Francis Ferdinand Kramer ✠ Cincinnati; Medical College of Ohio, Cincinnati, 1905; a lieutenant in the medical corps of the U. S. Army during World War I; on the staffs of St. Mary's and St. Francis hospitals; died June 14, aged 62, of diabetes mellitus.

Nelson Egbert Laidacker, China, Texas; Medical College of Indiana, Indianapolis, 1903; member of the State Medical Association of Texas; veteran of the Spanish-American War; died May 25, aged 75.

Jefferson Brown Latta, Fort Bayard, N. M.; Columbia University College of Physicians and Surgeons, New York, 1905; veteran of the Spanish-American War and World War I; formerly a surgeon in the U. S. Public Health Service reserve; served on the staffs of various U. S. Veterans hospitals; pathologist at the Veterans Administration Facility, where he died June 8, aged 63, of carcinoma of the liver.

John Russell Leadsworth, Anaheim, Calif.; College of Physicians and Surgeons of San Francisco, 1897; died in a hospital at Fullerton June 4, aged 78, of Parkinson's disease.

Bedford E. Love, Roxboro, N. C.; University of Maryland School of Medicine, Baltimore, 1904; honorary member of the Medical Society of the State of North Carolina; past president of the Person County Medical Society; physician for the Norfolk and Western Railway; served as state highway and public works physician and county physician; on the staff of the Community Hospital; died June 15, aged 71, of cerebral hemorrhage.

Frank Benson Lucas, Yreka, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; at one time on the staffs of the Los Angeles County Hospital and the Hilts Hospital, Hilts; served with the Civilian Conservation Corps and the Indian Service; died at his country home in Hornbrook June 26, aged 76, of heart disease.

George W. MacMillan, Lakewood, N. J.; College of Physicians and Surgeons, Baltimore, 1890; died June 1, aged 81, of acute myocarditis and carcinoma of the lower lip.

James Patrick Magner, Bayonne, N. J.; Fordham University School of Medicine, New York, 1912; for many years police surgeon; president of the medical staff of St. Francis Hospital, where he had been a member of the staff for thirty years; died June 27, aged 54, of coronary occlusion.

Lucy Agnes Marraffino ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1931; diplomate of the National Board of Medical Examiners; associate visiting physician, Misericordia Hospital; assistant visiting physician at the Gouverneur Hospital, where she was examining physician for the draft board; died in the New York Post-Graduate Medical School and Hospital June 6, aged 37, of postoperative embolus following cholecystectomy for cholelithiasis.

Irvin Hollis McDaniel, Alto, Texas; Chattanooga (Tenn.) Medical College, 1897; died May 15, aged 75, of Hodgkin's disease.

Onis Oliver Melton, Lowell, Ind.; University of Louisville (Ky.) Medical Department, 1910; served during World

War I; on the staff of St. Margaret Hospital, Hammond; died June 4, aged 59, of coronary thrombosis.

James Monroe Middleton, Many, La.; Vanderbilt University School of Medicine, Nashville, Tenn., 1890; served as a member of the first town council; one of the organizers of the first local bank, acting as vice president; chairman of the local school board for many years; president of the Sabine Parish Board of Health; died June 5, aged 77.

Elliott D. Moore, New Philadelphia, Ohio; Western Reserve University Medical Department, Cleveland, 1888; charter member of the New Philadelphia Rotary Club; formerly director of the Tuscarawas Savings and Loan Company; once president of the board of education; died June 15, aged 80.

John Marshall Mozley, Johnston City, Ill.; St. Louis College of Physicians and Surgeons, 1891; for many years city health officer; died June 26, aged 81, of carcinoma of the lungs.

Paul Nichols, New York; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1929; member of the Medical Society of the State of New York; died in the Mount Sinai Hospital June 29, aged 44, of acute leukemia.

Clarence Edgerton Owens, Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1910; member of the South Carolina Medical Association; died in the South Carolina Baptist Hospital May 27, aged 57.

Joseph N. Palt, Kenosha, Wis.; Illinois Medical College, Chicago, 1905; died in St. Catherine's Hospital May 31, aged 63, of cerebral hemorrhage.

Henry May Pond, Alameda, Calif.; University of California Medical Department, San Francisco, 1880; died in the Alameda Hospital June 6, aged 88, of arteriosclerotic heart disease.

Joseph Aloysius Richardson, Washington, D. C.; Medical College of the State of South Carolina, Charleston, 1917; died June 15, aged 55.

LT. COL. BERNARD E. BULLOCK
M. R. C., U. S. A., 1912-1944

LT. (JG) CHARLES H. HENDERSON JR.
(MC) U.S.N.R., 1918-1944

George J. Sabatier ✠ New Iberia, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1889; served on the staff of the Dauterive Hospital; a director of the New Iberia State National Bank; died June 17, aged 81, of coronary thrombosis.

Norman A. Saylor, Philadelphia; Hahnemann Medical College of Philadelphia, 1880; died in the Philadelphia State Hospital, June 6, aged 86, of cardiac decompensation and chronic myocarditis.

James W. Scott, Detroit; Michigan College of Medicine and Surgery, Detroit, 1896; member of the Michigan State Medical Society; formerly on the staff of Michigan Home and Training School, Lapeer, Mich.; died in the Mount Carmel Mercy Hospital June 25, aged 75, of myocarditis.

Frank Winfred Shelton ✠ Independence, Kan.; Kansas City (Mo.) Medical College, 1904; served during World War I; colonel, medical reserve corps, U. S. Army, not on active duty; died May 15, aged 68, of coronary occlusion.

John H. Shelton, Mayfield, Ky.; University of Louisville Medical Department, 1892; member of the Kentucky State Medical Association; president of the Graves County Medical Society; on the staff of the Mayfield Hospital; died June 2 while on a fishing trip, aged 79, of coronary occlusion.

Horace Watson Sherwood, Doland, S. D.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; member of the South Dakota State Medical Association and for many years councilor of the Second District; past president of the Watertown District Medical Society; died in Madison August 5, aged 78, of cerebral hemorrhage.

Hugh P. Skiles, Chicago; the Hahnemann Medical College and Hospital, Chicago, 1880; died June 2, aged 92, of cerebral and cardiac arteriosclerosis, uremia and hypostatic pneumonia.

Clarence Luverne Smith ✠ Seattle; State University of Iowa College of Medicine, Iowa City, 1923; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; served during World War I; chief of pediatric service, Children's Orthopedic Hospital; on the staffs of the Maynard and Seattle General hospitals; died April 23, aged 46.

Edward Elmer Smith, Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1910; member of the Ohio State Medical Association; coroner of Franklin County since 1930; during World War I served in France with the 146th Ambulance Company, 112th Sanitary Train, 37th Division; active in the Ohio National Guard and had been commissioned a lieutenant colonel in the Ohio State Guard; member of the city board of health from 1925 to 1937, serving as president in 1932; died in the Grant Hospital June 18, aged 58.

William Henry Steers ✠ Brooklyn; Bellevue Hospital Medical College, New York, 1890; during World War I a lieutenant colonel in the medical corps, with the twenty-seventh division in France, and later with the Army of Occupation on the Rhine; served on the staffs of the Gouverneur Hospital, New York, and Brooklyn Eye and Ear Hospital; died May 31, aged 74.

Harry Bennett Weinburgh ✠ Lansing, Mich.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; served during World War I; past National Commander of the Military Order of the Purple Heart; on the staffs of Edward W. Sparrow Hospital and St. Lawrence Hospital, where he died June 29, aged 62, of cerebral hemorrhage.

Fred C. Wood, Madison, Wis.; College of Physicians and Surgeons, Chicago, 1892; assistant physician, student health, University of Wisconsin; died June 4, aged 75, of coronary arterial disease.

KILLED IN ACTION

Bernard Eugene Bullock, Clinton, Okla.; Baylor University College of Medicine, Dallas, Texas, 1938; member of the Oklahoma State Medical Association; served an internship at the Kansas City General Hospital, Kansas City, Mo.; for two years city health officer; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on June 6, 1938; later promoted to major and lieutenant colonel; died in the European theater of operations June 10, aged 32, of wounds received in action.

Charles Herbert Henderson Jr., Bonny Blue, Va.; University of Virginia Department of Medicine, Charlottesville, 1943; intern at the Emory University Hospital, Emory University, Ga.; commissioned a lieutenant (jg) medical corps, U. S. Naval Reserve on Nov. 8, 1943; awarded Purple Heart posthumously; killed in action off the coast of France June 12, aged 25.

Bureau of Investigation

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices and cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products:

Ache-Knock Tablets.—In a stipulation entered into with the Federal Trade Commission in October 1943, Robert A. Stewart and Marie Phillips Stewart, trading as the Ache-Knock Company, Honolulu, T. H., agreed to discontinue the following advertising misrepresentations: That these tablets will relieve or cure rheumatism, sciatica, lumbago or neuritis, cure or prevent the recurrence of headache or toothache, relieve all pain or excessive acidity, and produce no ill effects. The respondents further stipulated that they would discontinue any claim to the effect that the product is superior to aspirin unless in immediate conjunction therewith they would make appropriate comparison of the relative liability to adverse effects following the use of Ache-Knock Tablets.

Alfamint, Minrich and Pretorius Liquifier.—In October 1943 Martin W. and Marie Pretorius, trading as Pretorius Approved Products, Glendale, Calif., stipulated with the Federal Trade Commission to discontinue the following misrepresentations in the sale of these products: That either Alfamint or Minrich can be depended on to give the user renewed vitality or purge the tissues of accumulated waste; that Alfamint, in either tea or tablet form, has any diuretic action which causes it to benefit the kidneys, or that it will increase the alkalinity of the blood, in neutralizing body acids or in adding needed minerals to the body; that Minrich improves digestion, supplies all the minerals lacking in the diet, or in any way helps to prevent or lessen the tendency of such conditions as loss of teeth, irregular heart action, rickets, nervousness, indigestion, anemia, infections, thyroid disturbances, low vitality or minor skin diseases; or that the use of liquid foods prepared by means of the Pretorius Liquifier, an electric mixing device, enables one suffering from nutritional deficiencies caused by an impaired digestive system to obtain necessary vitamins and minerals from raw vegetables, fruit and other food, with resultant regeneration of sick parts of the body.

Farrand Formulas.—These were sold by N. W. Farrand, trading as the Farrand Chemical Company, Tyrone, Pa., who, in October 1943, stipulated with the Federal Trade Commission that he would discontinue the following misrepresentations about the products made from his formulas: That "Cornox" would eliminate the pain of a corn as soon as applied; that "Machineless-Heatless Permanent Wave Fluid" would be harmless to the hair; that "Waterless Shave Cream" was capable of healing facial cuts and could not be purchased elsewhere for less than $5; that his "Inhalants" would relieve or check colds and give instant aid in nasal congestion and infections; or that his "Asthma Remedies" and "Hay Fever Remedies" would cure or permanently correct the ailments for which they were recommended. Farrand further agreed to discontinue any advertisements for, or instructions pertaining to, his formulas for the foregoing products which failed to reveal that the preparations compounded from them might be dangerous to health.

Pow-O-Lin.—This has been advertised as a treatment for indigestion, gas pains, headaches, nervousness, dizzy spells and other ailments by the Herb Juice-Penol Company, Inc., Danville, Va. In October 1943 that concern stipulated with the Federal Trade Commission that in future advertising it would reveal that Pow-O-Lin should not be used in cases of abdominal pain or other symptoms of appendicitis. It was provided, however, that the advertisements need contain only the statement, "Caution: Use only as directed" if the directions on the labeling include a warning to the same effect. It is worth noting that in December 1937 the Pow-O-Lin concern had entered into a stipulation with the Commission to cease advertising the product as being "Capable of relieving biliousness, nervousness, indigestion and countless ills due to constipation, unless these assertions are limited to temporary relief from constipation," and that in June 1940 the Commission definitely ordered the Pow-O-Lin concern to desist from making certain unwarranted implications in its advertising, such as that Pow-O-Lin is a cure or remedy for constipation and "faulty elimination" characterized by and associated with symptoms such as biliousness, indigestion, gas pains, headaches, dizziness, pains in the back or chest, stiffness of the joints, swollen feet or ankles, nervousness, insomnia, loss of appetite or lack of energy. These two earlier actions of the Commission were dealt with in The Journal for June 21, 1941, page 2811.

Seborol Scalp Lotion and Seborol Scalp Ointment.—These are put out by the Dermatological Products Corporation, Hoboken, N. J., which stipulated with the Federal Trade Commission in October 1943 that it would cease representing that the name "Seborol" is a registered trade mark in the United States Patent Office unless it is so registered.

Vanco Ointment.—This was represented by N. Edwards and Bertha Edwards, trading as Vanco Company, Brady, Neb., as a product that would prevent, cure or penetrate to the source of a cold, draw out congestion or pain or correct a sinus condition aggravated by a cold or be beneficial in pneumonia or influenza. In September 1943 the promoters entered into a stipulation with the Federal Trade Commission, agreeing to discontinue the foregoing misrepresentations.

Vita-Rex Capsules.—These are put out by one Joseph Giannatelli, trading as Alba Bio-Products Company, Chicago, who entered into a stipulation with the Federal Trade Commission in October 1943 in which he agreed to discontinue the following misrepresentations: That this product has any value in the treatment of poor assimilation, constipation, indigestion, gaseous conditions of the stomach or intestines, functional weakness or nerve disorders; that it will enrich the blood, improve the appetite, correct gastrointestinal disorders, increase systemic resistance or produce better health; that it will protect individuals against colds, aches or a tired-out feeling, supply the body with ample nutritional substances, and possesses value as an iron preparation.

Yog-A-Lax.—That this laxative is a stomach or bowel corrective and is not habit forming were misrepresentations which the Yoghurt Products, Inc., of Seattle agreed to eliminate from their advertising in a stipulation that they entered into with the Federal Trade Commission in October 1943. They further agreed to discontinue any advertisement which failed to reveal that the product should not be used when abdominal pains or other symptoms of appendicitis are present, provided, however, that such advertisements need contain only the statement, "Caution: Use only as directed" if the directions for use on the label contain a warning to the same effect.

MISBRANDED PRODUCTS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the Federal Security Agency

[EDITORIAL NOTE.—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act, and in cases in which they refer to drugs and devices they are designated D.D.N.J. and foods, F.N.J. The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the date of shipment; (4) the composition; (5) the type of nostrum; (6) the reason for the charge of misbranding, and (7) the date of issuance of the Notice of Judgment.]

Arnold Garlic Tablets.—Melrose Drug Company, Cleveland. Shipped Jan. 21, 1942. Composition: essentially starch and garlic. Misbranded because statement on carton, "May be of Value in Reduction of Hyper-Tension" was false and misleading, since product contained no ingredients to justify the statement.—[*D.D.N.J., F.D.C. 779; September 1943.*]

Davis Formula No. 7895.—E. R. Davis Prescription Company, Bellingham, Wash. Shipped Dec. 17, 1941, and June 23, 1942. Composition: essentially water, alcohol, potassium iodide, chloroform, sugar, and an extract of a plant drug, such as lobelia; supplementary bottle contained a solution of vitamin A. Misbranded because labeling falsely represented that this combination was an adequate treatment for asthma, hay fever, eczema or rheumatic, neuritic or arthritic pains.—[*D.D.N.J., F.D.C. 780; September 1943.*]

Fermlax.—Moon-Winn Drug Company, Inc., Athens, Ga. Shipped March 11, 1942. Composition: essentially sodium bicarbonate, magnesium and calcium carbonates, bismuth subnitrate and rhubarb. Misbranded because label directions provided for continuous administration, whereas product was a laxative and should not be used continuously, and because directions failed to give the dosage for children of different ages. Further misbranded because labeling failed to warn that a laxative should not be taken in case of nausea, vomiting, abdominal pain or other symptoms of appendicitis, and that frequent or continued use of a laxative might result in dependence on it to move the bowels. Also misbranded because label failed to declare an accurate statement of quantity of contents.—[*D.D.N.J., F.D.C. 760; September 1943.*]

Ramsdell's Sulphur Cream.—E. Fougera & Company, Inc., New York. Shipped April 22, 1942. Composition not reported. Adulterated because strength differed from that which it was represented to possess, namely, "Contains 10% Precipitated Sulphur." Misbranded because of false label representations that it would be efficacious in treating scabies, eczema, ringworm, itching, simple acne, acne rosacea, burning and soreness in eczema and water rash, as well as bald spots and falling hair.—[*D.D.N.J., F.D.C. 772; September 1943.*]

Vita Might Capsules.—Vital Foods Corporation, Chicago. Shipped Feb. 28, 1942. Composition (black capsules): dicalcium phosphate, peptonized iron, magnesium sulfate, manganese hypophosphite, copper peptonate, zinc sulfate and potassium iodide; (red capsules) shown by vitamin assays to contain, per capsule, 10,000 U. S. P. units of vitamin A and 1,000 U. S. P. units each of vitamins B_1 and D. Misbranded because black capsules contained smaller amounts of minerals than those declared, and labeling of both kinds bore false and misleading claims as to their supposed benefits in many disorders, such as lessened strength, poor sleep, aches, pains, nervous strain and some other things.—[*D.D.N.J., F.D.C. 786; September 1943.*]

Correspondence

FACTS ABOUT CHILDREN'S BUREAU CONFERENCE ON CHILD CARE

To the Editor:—My attention has been called to the Washington letter in THE JOURNAL, August 12, headed "American Academy of Pediatrics Withdraws Support from Children's Bureau." In this letter the following statement is made:

> Last month a conference of child specialists and social workers here took a stand against the bureau's group care of children, asserting that group care was damaging to child welfare and actually more expensive than a foster family system of care which the conferees advocated.

This statement is false. The Children's Bureau does not conduct group care of children. We have consistently taken a position against group care of children under the age of 2 years.

On July 30 and Aug. 1, 1941 the Children's Bureau held a conference on day care of children of working mothers which adopted certain recommendations including the following: "Infants should be given individual care, preferably in their own homes and by their own mothers." The Standards for Day Care of Children of Working Mothers, published in February 1942, contains the following statement:

> If it is necessary to provide for children under 2 years of age provision should be made for care in the children's own homes through supervised homemaker service or in carefully selected and supervised foster homes. Infants should not be cared for in groups.

This has been the policy of the Children's Bureau throughout the war period.

The only federal funds now available for day care services are Lanham Act funds administered by the Federal Works Agency. This summer, for the first time, applications for funds to conduct group care services for children under 2 years of age came to the Federal Works Agency and, in accordance with agreed policies, were referred to the Children's Bureau for its review. I took the position that we could not pass upon these policies for group care of infants under 2 without having the advice of the most competent experts from the fields of health, child development and social service. Accordingly I called a conference, which met on July 10, 1944. Among others attending the conference were Dr. Marian C. Putnam, director, Children's Center, Roxbury, Mass.; Dr. Milton Senn, assistant professor of pediatrics and psychiatry, Cornell University Medical College; Dr. Benjamin Spock, assistant attending pediatrician, New York Hospital (now Lieutenant Commander in the Navy), and Dr. Arnold Gesell, director of the Clinic of Child Development and Attending Pediatrician, New Haven Hospital.

The conference upheld the policy of the Children's Bureau with reference to infants and recommended against group care of infants under the age of 2 years. This recommendation was transmitted by the Children's Bureau to the Federal Works Agency, and the Children's Bureau is now cooperating with the Federal Works Agency in the review of an application for funds for group care of infants in San Diego, Calif., with a view to determining whether it would not be possible to provide for infants in foster families.

KATHARINE F. LENROOT, Washington, D. C.
Chief of the Children's Bureau.

TREATMENT OF POLIOMYELITIS

To the Editor:—I feel that physicians should be warned against the use of sulfonamide drugs in the treatment of poliomyelitis.

It has been noticed clinically that when paralyses of the intestine and urinary bladder persist there are apt to be extensions of the somatic paralyses. When urinary retention was produced in animals (monkeys) by the use of sulfonamide compounds, drugs which produced ureliths and blockage of the ureters, a more massive disease was produced two or three days sooner than that which appeared in controls simultaneously injected with poliomyelitis virus.

Rosenow had the same experience with sulfapyridine at the Mayo Clinic and reported that this drug produced an additive neurotoxic effect.

Recently an explosive epidemic of poliomyelitis occurred in a small town of northern Ohio. The number of patients that developed severe paralysis seemed out of proportion to the normal expectancy. Most of these patients had received sulfonamide drugs (information received from Mrs. Louise Bowers, health officer, Perrysburg, Ohio).

Recently a 12 year old girl had signs of meningeal irritation, but no sign of any muscle involvement save in one leaf of the soft palate. The reflexes were hyperactive; the child was not acutely ill. The spinal fluid, checked twice, contained 220 cells, all of which were polymorphonuclears. Gram negative organisms had been reported. The prognosis seemed good whether the condition was poliomyelitis or meningitis. Sulfadiazine was started. Twelve hours later and after 12 Gm. of sulfadiazine had been given, a massive extension of paralysis suddenly developed, the throat muscles and intercostals all becoming affected within an hour. This sudden explosive extension in an otherwise nearly normal patient had not been our previous experience in this type of case.

The sulfonamide drugs are of no value in poliomyelitis. Nor does penicillin help much in our experience, although we have not noticed that it does harm.

JOHN A. TOOMEY, M.D.,
Department of Contagious Diseases,
City Hospital, Cleveland.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Aug. 19, page 1155.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various centers, Nov. 13-15. Part III. Various centers, September or October. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Part I. Various centers, Jan. 19. Final date for filing application is Oct. 21. Sec., Dr. P. M. Wood, 749 Fifth Ave., New York 22.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Various centers, February. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Los Angeles, January. Final date for filing application is Oct. 1. New York, June. Chicago, October, 1945. Final date for filing application is Dec. 1. Sec. Dr. S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 4-7. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Oral.* New York, April 14-15. Final date for filing application is Dec. 15. Chicago, May 19-20. Final date for filing application is Jan. 19. Sec., Dr. C. A. Aldrich, 115½ First Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: *Oral.* New York, December. Final date for filing application is Sept. 30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N.W., Washington 6, D. C.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Right of Court Reviewing Revocation of License to Receive Evidence in Addition to Evidence Heard by Board: Disturbance of Peace as Unprofessional Conduct.—Wyatt, who was licensed to practice medicine in California, was placed on probation in 1940 for five years by the Board of Medical Examiners of California on charges of the nature of which the reported decision makes no mention. In 1942 proceedings were instituted to revoke his license for violating probation on a charge that (1) he had attempted to procure on two named women miscarriages that were not necessary to save their lives and (2) that he had been guilty of an offense involving moral turpitude, a cause of revocation, because he had been convicted of disturbing the public peace and quiet by the use of profane and indecent language. At the hearing before the board the physican and the named women denied that the women had been pregnant and that miscarriages had been procured with respect to them. A nurse, however, employed by the physician testified that she assisted the physician in performing the operations in question and that the physician curetted the wombs of both women and removed a fetus from one of them which, she testified, was about a month old. The board found the charges sustained and revoked the physician's license to practice. The physician then instituted mandamus proceedings against the individual members of the board to compel them to cancel the order revoking his license. The trial court heard all the evidence that was adduced before the board and in addition heard the testimony of another physician, who stated that a fetus of an age of 4 weeks, the age of the one the nurse testified she had seen removed, would be the size of a buckshot and the nature of such a substance could be ascertained only by the use of a microscope. The trial court found the evidence insufficient to sustain the charges preferred with the board and ruled in favor of the physician, and the board appealed to the district court of appeal, first district, division 2, California.

The board contended first that it was error in a hearing on a petition for writ of mandate for the trial court to hear evidence in addition to that heard by the board. The board argued that evidence additional to that received at its hearing could be considered by a reviewing court only (1) where evidence has been offered and improperly rejected by the administrative agency whose acts are under review, (2) where pertinent evidence was in existence at the time of the hearing before the administrative agency but could not have been at the time produced by the exercise of due diligence and (3) evidence discovered subsequent to the hearing before the administrative agency. The court, however, could not agree with this contention, relying on *Laisne* v. *California State Board of Optometry*, 19 Cal. 2d 831, 123 P. 2d 457. In that case the court said:

> If, in the instant case, the superior court in the mandate proceeding were limited to the evidence presented before the board, or if the findings of fact by the board were conclusive on the court, then the board would be exercising the complete judicial power reserved to the enumerated courts . . . and appellant would be deprived of his constitutional right unless he had a right to go into a court of law and question the validity of that order by the introduction of any material evidence to prove that he did not commit the acts alleged.

The board next argued that its action in revoking the physician's license was justified from the evidence before it that the physician had been convicted of disturbing the peace, which is an act of moral turpitude. The vice in this contention, answered the court, is that it assumes that the offense of disturbing the peace is an act of moral turpitude. That it is an act of turpitude may be conceded. However, it is equally clear that it is not ipso facto an immoral act. If and when it is claimed that such an act is one of moral turpitude the trial court may inquire into such facts as show or tend to show that the offense complained of was or was not an act of moral turpitude. In the case before us such evidence was produced by the physician. Thereafter the trial court made findings that the offense alleged to have been committed by the physician in disturbing the peace was not one of moral turpitude. That finding is conclusive on an appellate court.

For the reasons stated, the appellate court affirmed the order of the trial court directing, in effect, that the physician's license to practice be restored to him.—*Wyatt v. Cerf, 149 P. 2d 309 (Calif., 1944.)*

Society Proceedings

COMING MEETINGS

Aero Medical Association of the United States, St. Louis, Sept. 4-6. Dr. David S. Brachman. 5440 Cass Ave., Detroit 2, Secretary.

American Academy of Neurological Surgery, White Sulphur Springs, W. Va., Sept. 7-9. Dr. Theodore C. Erickson, Wisconsin General Hospital, Madison, Wis., Secretary.

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 8-12. Dr. W. L. Benedict, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 7-9. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Congress of Physical Therapy, Cleveland, Sept. 6-9. Dr. Richard Kovacs, 2 East 88th St., New York 28, Secretary.

American Hospital Association, Cleveland, Oct. 2-6. Mr. George P. Bugbee, 18 East Division St., Chicago, Executive Secretary.

American Pediatric Society, Atlantic City, N. J., Sept. 25-27. Dr. Hugh McCulloch, 325 N. Euclid Ave., St. Louis 8, Secretary.

American Public Health Association, New York, Oct. 3-5. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Roentgen Ray Society, Chicago, Sept. 24-29. Dr. H. Dabney Kerr, University Hospitals, Iowa City, Secretary.

Association of American Medical Colleges, Detroit, Oct. 23-25. Dr. Fred C. Zapffe, 5 S. Wabash Ave., Chicago, Secretary.

Colorado State Medical Society, Denver, Sept. 27-29. Dr. John S. Bouslog, 537 Republic Bldg., Denver 2, Secretary.

Delaware, Medical Society of, Lewes, Sept. 11-12. Dr. W. O. La Motte, 601 Delaware Avenue, Wilmington, Secretary.

District of Columbia, Medical Society of the, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Secretary.

Indiana State Medical Association, Indianapolis, Oct. 3-5. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Inter-State Postgraduate Medical Association of North America, Chicago, Oct. 17-20. Dr. Arthur G. Sullivan, 16 N. Carroll St., Madison, Wis., Managing Director.

International College of Surgeons, U. S. Chapter, Philadelphia, Oct. 3-5. Dr. Desiderio Roman, 250 South 17th St., Philadelphia, Secretary.

Kentucky State Medical Association, Lexington, September 18-20. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 27-29. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Secretary.

Mississippi Valley Medical Society, Peoria, Ill., Sept. 27-28. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Omaha Mid-West Clinical Society, Omaha, Nebraska, Oct. 23-27. Dr. J. D. McCarthy, 1036 Medical Arts Bldg., Omaha 2, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Sept. 19-21. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh 22, Secretary.

Radiological Society of North America, Chicago, Sept. 24-29. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse, N. Y., Secretary.

Virginia, Medical Society of, Richmond, Oct. 23-25. Miss Agnes V. Edwards, 1200 E. Clay St., Richmond 19, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 18-20. Mr. Charles H. Crownhart, 110 E. Main St., Madison 3, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

13:381-440 (June) 1944

Value and Limitation of Laboratory Tests in Clinical Medicine. T. R. Harrison.—p. 381.
Intestinal Obstruction. E. F. Moody.—p. 385.
Simplified Chin Support. C. J. Thuss.—p. 387.

14:1-24 (July) 1944

The Nervous Patient. G. O. Segrest.—p. 1.
Treatment of Craniocerebral Wounds. C. Pilcher.—p. 5.
Skin Grafting, with Especial Reference to Split Thickness Skin Graft. J. L. Carmichael.—p. 11.

American Journal of Medical Sciences, Philadelphia

207:701-832 (June) 1944

Thiouracil Storage in Thyroid as Affected by Thyrotropic Hormone and Potassium Iodide. R. H. Williams, A. R. Weinglass and Gloria A. Kay.—p. 701.
Interference Between Inactive and Active Viruses of Influenza: I. Incidental Occurrence and Artificial Induction of Phenomenon. W. Henle and Gertrude Henle.—p. 705.
Id.: II. Factors Influencing the Phenomenon. W. Henle and Gertrude Henle.—p. 717.
One Year Observations of Treatment of Cancer with Avidin (Egg White). I. I. Kaplan.—p. 733.
Concentration of Red Blood Corpuscles Containing Labeled Phosphorus Compounds in Arterial Blood After Intravenous Injection: Preliminary Report. G. Nylin and M. Malm.—p. 743.
*Evaluation of Alcohol Lumbar Paravertebral Block in Peripheral Vascular Disease. G. Saland and C. Klein.—p. 749.
Amebiasis: Analytic Study of Cases Admitted to Philadelphia Hospital During Last Five Decades. R. S. Diaz-Rivera and E. A. Rasberry.—p. 754.
*Trichinella Skin Tests in Patients in General Hospitals and Tuberculosis Sanatoriums. S. F. Horne and G. T. Harrell.—p. 759.
Heart Block: Study of 100 Cases with Prolonged PR Interval. R. B. Logue and J. F. Hanson.—p. 765.
Neuropsychiatric Casualties from Guadalcanal: I. Persistent Symptoms in 3 Cases. A. A. Rosner.—p. 770.
Tumefaction of Subcutaneous Fat Following Injection of Insulin: Chemical and Histologic Study. H. T. Engelhardt and V. J. Derbes.—p. 776.

Alcohol Lumbar Paravertebral Block in Peripheral Vascular Disease.—Saland and Klein tried to determine objectively (1) exactly how long one may expect vasodilatation effects to last after alcohol paravertebral block in the lumbar region, (2) whether neuritis is produced by such a procedure and, if so, how often, how severe and how long such neuritis might last, (3) whether the amount of alcohol used was a factor in producing vasodilatation or neuritis, (4) whether the use of procaine hydrochloride in sweet almond oil would reduce the incidence of neuritis and (5) whether claudication time would be altered by such therapy. The patients studied were those who applied to the vascular clinic for relief of symptoms and comprised a total of 16. The types of cases were 1 phlebitis, 1 scleroderma, 1 thromboangiitis obliterans and 13 arteriosclerosis obliterans. These cases were chosen because it was determined previously by peripheral nerve block with procaine hydrochloride that the extremity to be treated could vasodilate up completely. In 6 cases the authors used 2 per cent procaine hydrochloride followed by 5 per cent procaine hydrochloride in sweet almond oil, and this in turn by 1 cc. of 100 per cent alcohol; in 4 cases 2 per cent procaine hydrochloride followed by 1 cc. of 100 per cent alcohol; in 6 cases 2 per cent procaine hydrochloride followed by 3 cc. of 100 per cent alcohol. The authors arrive at the following conclusions: 1. The use of 100 per cent alcohol in lumbar paravertebral block is of definite value in producing peripheral vasodilatation. This vasodilatation may be complete and may last for varying periods of time, even up to two years and perhaps longer. 2. The neuritis occurs more often when larger amounts of alcohol are injected; it is not too severe and in no instance has lasted more than forty-five days. 3. The use of procaine hydrochloride in sweet almond oil did not reduce the incidence of neuritis. 4. Vasodilatation occurred more often when larger amounts of alcohol were used, but the amount of alcohol was not the factor that determined how long this vasodilatation lasted. 5. There was no correlation between claudication time and the degree or duration of vasodilatation.

Trichinella Skin Tests.—Horne and Harrell used a 1:10,000 trichinella extract to perform skin tests on 700 patients, namely on 278 consecutive admissions to the North Carolina Baptist Hospital, 144 patients at the Forsyth County Hospital, 120 patients at the Guilford County Tuberculosis Sanatorium and 158 patients at the Western North Carolina Tuberculosis Sanatorium. Seventy, or 10 per cent, of the 700 patients gave positive skin reactions. This is lower than similar studies have shown in some other areas of the United States. The incidence found by skin tests was greater than that found in routine necropsies in the same geographic area. The incidence was greater among Negroes and in males but was not statistically significant in either. The incidence of positive tests was essentially the same in urban and rural groups. Patients with active tuberculosis in two sanatoriums gave a higher proportion of positive reactions (14.3 per cent) than did those without tuberculosis (7.1 per cent) in two general hospitals. Almost all of the patients with tuberculosis were in two sanatoriums; it is possible that these findings represent the result of two local, unrecognized or subclinical epidemics. Other possible explanations are that patients with tuberculosis develop skin sensitivity with much lighter infestations or retain sensitivity longer than do nontuberculous patients or that their skin is more reactive to intradermal tests in general. However, personal communications from men with experience in treating tuberculosis indicate that, in general, they have not found their patients more reactive to intradermal tests than nontuberculous persons.

American Journal of Ophthalmology, Cincinnati

27:589-686 (June) 1944

Exophthalmos of Hyperthyroidism: Differentiation in Mechanism, Pathology, Symptomatology and Treatment of Two Varieties: Part I. J. H. Mulvany.—p. 589.
Sugar Content of Cataractous Human Lenses. P. W. Salit.—p. 612.
Pneumoencephalocele Secondary to Puncture Wound of Lid. H. Slaughter and B. Y. Alvis.—p. 617.
Ophthalmoplegia and Retinal Degeneration. Ruth I. Barnard and R. O. Scholz.—p. 621.
Use of Doryl in Glaucoma. J. F. Hardesty.—p. 625.
Keratoconjunctivitis Caused by Manzanillo Tree. R. D. Harley.—p. 628.
*Actinic Keratoconjunctivitis. R. G. Scobee and E. W. Griffey.—p. 632.
Correction of External Rectus Paralysis with Contracture of Opposing Internus. P. H. Reinhardt.—p. 636.

Actinic Keratoconjunctivitis.—Scobee and Griffey found the following treatment highly satisfactory for keratoconjunctivitis or flash burn: Once the diagnosis is made, the patient is rendered comfortable by the instillation of a corneal anesthetic; 0.5 per cent pontocaine is a good, quick acting one. Following anesthesia, three instillations of 1:1,000 epinephrine at five minute intervals are made; if the patient is seen soon after the onset of ocular pain and before vascular congestion has reached a maximum, this is all that is necessary. Usually such patients gain immediate and frequently permanent relief, enabling them to return to work at once. If vasodilatation is severe the aforementioned routine is followed, and in addition the patient is given holocaine and epinephrine ophthalmic ointment to be used in the eye every three hours. One early sign of a severe burn is a miotic pupil. One per cent atropine ophthalmic ointment is instilled, but several repetitions may be necessary before mydriasis is secured. In the more severe burns, or in those which are not seen until forty-eight to ninety-six hours after the burn has occurred, more drastic therapy may be indicated. Chemosis and a mucopurulent secretion in addition to palpebral edema are all a part of the entity of flash burn and are not on an infective basis. Cold packs and holocaine and epinephrine ointment are usually sufficient. Occasionally a seda-

tive is necessary. Either corneal or conjunctival ulceration or both must be dealt with apart from flash burn. Corneal ulcers thus formed are indolent. Chemical cauterization, intravenous typhoid, vitamin therapy (riboflavin and ascorbic acid), ethylmorphine hydrochloride and methylene blue powder may be tried. As long as corneal staining persists, the eye should be kept closed with an eye pad.

American Journal of Physiology, Baltimore

141:439-612 (June) 1944. **Partial Index**

Estimation of Platelet Fragility. M. E. Muhrer, R. Bogart and A. G. Hogan.—p. 449.
Effect of Caffeine on Gastric Secretion in Dog, Cat and Man. J. A. Roth and A. C. Ivy.—p. 454.
Influence of Agents Affecting Autonomic Nervous System on Motility of Small Intestine. E. J. Van Liere, D. W. Northup and J. C. Stickney.—p. 462.
Effect of Adrenal Medullectomy on Hereditary Diabetes of Strain of Rats. G. Sayers, M. Sayers, J. D. Plekker, A. U. Orten and J. M. Orten.—p. 466.
Excretion of Urea by Normal Subjects Under Basal Conditions. R. S. Hubbard and F. R. Griffith Jr.—p. 469.
Effect of Intrahepatic Pressure on Bile Resorption During Obstructive Jaundice. B. G. P. Shafiroff, H. Doubilet, I. S. Barcham and Co Tui.—p. 480.
Acoustic Alterations of Postcontraction Hypertonus in Limb Muscles of Normal Man. H. S. Wells.—p. 486.
Sodium Ion Movement Between Intestinal Lumen and Blood. M. B. Visscher, R. H. Varco, C. W. Carr, R. B. Dean and Dorothy Erickson.—p. 488.
Pepsin Content of Gastric Juice Secreted in Response to Hormonal Stimulation. M. Grossman, J. R. Woolley and A. C. Ivy.—p. 506.
Enzyme Content of Pancreatic Secretion Following Various Stimulants. H. Greengard, M. I. Grossman, R. A. Roback and A. C. Ivy.—p. 509.
Blood Flow, Peripheral Resistance and Vascular Tonus, with Observations on Relationship Between Blood Flow and Cutaneous Temperature. H. D. Green, R. N. Lewis, N. D. Nickerson and A. L. Heller.—p. 518.
Effect of Histamine and Hydrochloric Acid on Gastric Secretion and Potential. W. S. Rehm.—p. 537.
Hypophysial Eosinophil Cell and Insulin Sensitivity. P. Heinbecker and Doris Rolf.—p. 566.
Local Loss of Fluid and Protein in Experimental Shock: Relation to Decrease of Plasma Volume and Total Circulating Proteins. C. T. Ashworth, A. W. Jester and E. L. Guy.—p. 571.
Factors Influencing Chloride Concentration in Human Sweat. R. E. Johnson, G. C. Pitts and F. C. Consolazio.—p. 575.
Adrenalectomy, Gonadectomy and Insulin Content of Pancreas. R. E. Haist and H. J. Bell.—p. 606.

American Journal of Psychiatry, New York

100:727-870 (May) 1944. **Partial Index**

Electroencephalogram in Post-Traumatic Epilepsy. F. A. Gibbs, W. R. Wegner and E. L. Gibbs.—p. 738.
Post-Traumatic Epilepsy. W. Penfield.—p. 750.
Experiment in Postgraduate Education. C. A. Rymer and F. G. Ebaugh.—p. 752.
Historical Sidelights on Problem of Delinquency. G. Zilboorg.—p. 757.
Psychiatric Study of 250 Sex Offenders. B. Apfelberg, C. Sugar and A. Z. Pfeffer.—p. 762.
Comparative Statistical Study of Male and Female Drug Addicts. M. J. Pescor.—p. 771.
Neurology and Psychiatry in Palestine. L. Halpern.—p. 775.
Measurement of Remembering. F. Feldman and D. E. Cameron.—p. 788.
Four Years' Experience with Music as Therapeutic Agent at Eloise Hospital. I. M. Altshuler.—p. 792.
Etiology of Mental Disease, Changing Concept. G. S. Sprague.—p. 795.
*Amphetamine Sulfate in Aborting Acute Alcoholic Cycle. M. M. Miller.—p. 800.
Schizophrenia in 4 Year Old Boy. H. R. Blank, O. C. Smith and H. Bruch.—p. 805.
Study of Prodromal Factors in Mental Illness, with Special Reference to Schizophrenia. Mary Phyllis Wittman and D. L. Steinberg.—p. 811.
Neuropsychiatry in General Hospital. T. J. Heldt.—p. 817.
Rapid Changes in Oxygen Tension of Cerebral Cortex During Induced Convulsions. E. W. Davis, W. S. McCulloch and E. Roseman.—p. 825.
Clinical and Electroencephalographic Studies in Obsessive-Compulsive States. B. L. Pacella, P. Polatin and S. H. Nagler.—p. 830.

Amphetamine Sulfate in Aborting Acute Alcoholic Cycle.—To test the effects of amphetamine sulfate, Miller made studies on 30 persons with suspended sentences, referred from the Cleveland Municipal Court, and 26 private patients. All were nonpsychotic, chronic alcoholic addicts treated during the acute postintoxication period. The average duration of alcoholism was sixteen years. The procedure consisted of amphetamine sulfate 10 mg. administered orally twice daily after breakfast and after lunch, phenobarbital 1½ grains (0.1 Gm.) at bedtime and thiamine hydrochloride 30-40 mg. daily. The patients were told to include large amounts of sugar in their diet. Tepid reclining baths were ordered mornings and evenings and bed rest was recommended when indicated. In 8 control patients placebos were substituted for amphetamine sulfate; otherwise the treatment was identical. The acute drinking cycle was interrupted in 49 of the 56 patients, with subsequent periods of abstinence ranging from one to eighteen months or longer. Seven patients failed to respond satisfactorily. The cycle was not interrupted in the control group treated with placebos. It was found that physical and mental "hangover effects" were much reduced by amphetamine sulfate. Improvement in awareness, sensory perception and activity drive was observed soon after treatment. Mood and rapport were improved, patients demonstrating greater cooperation, increased accessibility and decreased negativism, thus facilitating the initiation of a rehabilitative program.

American Journal of Public Health, New York

34:567-692 (June) 1944

Epidemic Keratoconjunctivitis: Correlation of Epidemiologic Data and Results of Serum Virus Neutralization Tests. R. F. Korns, M. Sanders and R. C. Alexander.—p. 567.
Epidemic Keratoconjunctivitis—Detroit Experience. J. G. Molner and E. L. Cooper.—p. 572.
Current Progress in Sterilization of Air. S. Mudd.—p. 578.
Nutritive Value of Canned and Dehydrated Meat and Meat Products. E. E. Rice and H. E. Robinson.—p. 587.
Nutritive Values of Canned Fruits and Vegetables. J. F. Feaster.—p. 593.
Sanitary Engineering in Latin America. H. B. Gotaas.—p. 598.
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Epidemiology of Cancer from Viewpoint of Health Officer. M. L. Levin.—p. 611.
Serologic Identification of Dysentery Bacilli. K. M. Wheeler.—p. 621.
Nutrition: Factor Important for Industrial Hygiene. G. R. Cowgill.—p. 630.
Chest X-Ray Survey Methods in Practice. A. B. Robins.—p. 637.
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Block Organization for Health Education. H. Y. McClusky.—p. 648.
Preparing High School Students for Community Service. G. L. Davis.—p. 652.

American Journal of Surgery, New York

64:297-434 (June) 1944

Paralytic Scoliosis: Analysis of 51 Cases. S. Kleinberg.—p. 301.
Efficacy of Ultraviolet Blood Irradiation Therapy in Control of Staphylococcemias. G. Miley.—p. 313.
Synergistic Mixture of Azochloramid, Urea and Sulfanilamide: Experimental and Clinical Study. J. A. Dingwall III.—p. 323.
Osteochondritis Dissecans. G. H. Stein, R. G. Ikins and F. C. Lowry.—p. 328.
Pilonidal Cyst: Postoperative Problem. L. A. Barnett.—p. 338.
Carcinoma of Rectum: Conservative Surgery in Certain Instances. D. R. Keller.—p. 346.
Cationic Detergents as Antiseptics. E. D. W. Hauser and W. W. Cutter.—p. 352.
*New Coagulum Contact Method of Skin Grafting: Further Simplifications in Technic. Machteld E. Sano.—p. 359.
Burn Therapy: Consideration of Burns in Industry. Alma Dea Morani.—p. 361.
Method of Treating Nerve Ends in Amputation Stumps. J. T. Bate.—p. 373.
Treatment of Fractured Femur in Children. L. F. Bush.—p. 375.
Castilian Malva. M. Marks.—p. 379.
*Essential Hypertension: Surgical Treatment. W. P. E. Berwald and K. D. Devine.—p. 382.
Simultaneous Performance of Rubin Test and Endometrial Biopsy. S. S. Rosenfeld.—p. 385.

Coagulum Contact Method of Skin Grafting.—Sano had suggested the use of heparinized autogenous plasma and cell extract from the buffy coat alone or from the buffy coat admixed with erythrocytes as a means of promoting the immediate fixation of the graft and subsequent union by stimulation of cellular growth. When grafts are applied after heparinized autogenous plasma has been painted on the recipient area and cellular extract on the undersurface of the graft, a coagulum forms within a few minutes which fastens the graft in place, rendering unnecessary either sutures or special retention dressings. As a rule, vascularization of the graft follows within forty-eight hours. Thin, medium and thick split grafts as well

as full thickness grafts may all be used successfully with the method. Originally the author prepared the plasma and cell extract immediately before grafting. A modification of the original method consists in using pooled, heparinized dried plasma and dried cell extract instead of fresh autogenous plasma and cell extract in experimental skin grafting in guinea pigs. This method has all the advantages of the previously described method plus the convenience of having the plasma and cell extract immediately available for use anywhere at any time.

Surgical Treatment of Essential Hypertension.—In the past three years Berwald and Devine have employed extensive sympathectomy in the treatment of 29 patients with essential hypertension. In 24 of these Adson's subdiaphragmatic approach was used, 4 were operated on using Smithwick's dorsolumbar approach, and the remaining patient had the Smithwick operation on the right side and the Adson operation on the left side. Kidney biopsies were taken from 14 patients. All but 2 patients are alive. A careful follow-up was made on the surviving patients. The surgeon realizes that except in the most ideal cases he cannot cure hypertension, but he can effect partial cure, temporary alleviation and great subjective improvement in a large percentage of properly selected cases. The authors are enthusiastic about their results. Most of the patients were referred by clinicians who had exhausted the medical armamentarium in attempting to relieve them. Objective improvement was secured by sympathectomy in 64 per cent and subjective improvement in over 92 per cent of these cases. Sympathectomy, therefore, appears to have a real value and is here to stay until a better method is discovered. The criticism that the operation is too dangerous and strenuous for the patient compared to the relief obtained is not true. Few operations are attended with as little risk and postoperative discomfort as extensive sympathectomy.

American Journal of Tropical Medicine, Baltimore

24:157-220 (May) 1944

Age Level for Peak of Acquired Immunity to Malaria as Reflected by Labor Forces. H. C. Clark.—p. 159.
Quinine Inhibition of Bacterial Luminescence. F. H. Johnson and L. Schneyer.—p. 163.
Cysticidal Effects of Chlorine and Ozone on Cysts of Endamoeba Histolytica, Together with Comparative Study of Several Encystment Media. J. F. Kessel, D. K. Allison, Martha Kaime, Maria Quiros and A. Gloeckner.—p. 177.
Amebiasis of Uterus. D. de Rivas.—p. 185.
Influence of Cholesterol and Certain Vitamins on Growth of Endamoeba Histolytica with a Single Species of Bacteria. C. W. Rees, J. Bozicevich, Lucy V. Reardon and F. S. Daft.—p. 189.
*Incidence and Significance of Trichomonas Vaginalis Infestation in Male. L. G. Feo.—p. 195.
Intradermal Reactions Following Use of Dirofilaria Immitis Antigen in Persons Infected with Onchocerca Volvulus. W. H. Wright and J. R. Murdock.—p. 199.
Intradermal and Serologic Tests with Dirofilaria Immitis Antigen in Cases of Human Filariasis. J. Bozicevich and A. M. Hutter.—p. 203.
Report on Program for Improving Teaching of Tropical Medicine in Medical Curriculum. H. E. Meleney.—p. 209.
Financial Support of Tropical Medicine. A. R. Crawford.—p. 213.

Trichomonas Infection in Men.—According to Feo, accurate statistics are not available as to the frequency of Trichomonas vaginalis infection in men, but it is the opinion of many that the incidence of infection is higher than the literature would lead one to believe. The opportunity to examine a large series of men who had the provisional diagnosis of urethral discharge was afforded the author while assigned to the genitourinary section of the station hospital at Fort George G. Meade, Maryland. His studies were made on inductees found to have a urethral discharge or suspected of having one. Their ages varied from 18 to 43 years, with the mean falling between 20 and 30 years. The men were examined on arising in the morning before attending the latrine. The urethra was "stripped" and the resulting discharge collected on a cotton swab previously moistened with isotonic solution of sodium chloride. This was then mixed in 2 or 3 cc. of isotonic solution of sodium chloride. The organisms were sought by the microscopic examination of the moist films. This study revealed 144 of 926 men positive for Trichomonas vaginalis, a percentage incidence of 15.5. Separating this group into white and Negro men, the percentage incidence was 12 and 16.5 respectively. Of the 926 men examined, 246 were classed as having nonspecific urethritis. The percentage incidence of nonspecific urethritis cases which may be attributable to Trichomonas vaginalis was 36.9. The entire group of Trichomonas vaginalis positive men was relatively free from all symptoms. A discharge may be noted which is characteristically small in amount, thin in consistency and of a dirty white color. Microscopically this discharge showed few epithelial cells and a moderate number of pus cells and trichomonads. Some of the stained smears were similar to vaginal ones from cases of Trichomonas vaginalis vaginitis as to number of trichomonads and types of bacteria. The male is the important transmitter of Trichomonas vaginalis infection, while the female eventually becomes a reservoir of infection.

Annals of Internal Medicine, Lancaster, Pa.

20:881-1046 (June) 1944

The Internist at War: Glance at the Record. H. J. Morgan.—p. 881.
Observations of Atypical Pneumonias of Influenzal Virus Type. E. A. Brethauer Jr. and R. T. Thompson.—p . 884.
Primary Atypical Pneumonia, Etiology Unknown: Average Clinical Picture Based on 37 Original Cases. R. H. Smith.—p. 890.
*Causes of Death in 30 Cases of Rheumatoid Arthritis. E. F. Rosenberg, A. H. Baggenstoss and P. S. Hench.—p. 903.
Bacteroides Infections of Central Nervous System. W. E. Smith, R. E. McCall and T. J. Blake.—p. 920.
Gallbladder Disease in Elderly Patients. J. Rosenthal.—p. 933.
Pancreatic Lithiasis. T. C. Jaleski.—p. 940.
*Nutritional Role of Cholesterol in Human Coronary Arteriosclerosis. C. F. Shaffer.—p.. 948.
Electrocardiographic Studies in Old Age. L. M. Taran and M. Kaye. —p. 954.
Aneurysm of Aorta Rupturing into Right Ventricle. W. H. Harris Jr. and H. J. Schattenberg.—p. 961.
Source of Sulfathiazole Hematuria Induced in Rabbits. G. I. Trevett and S. S. Blackman Jr.—p. 971.

Causes of Death in Rheumatoid Arthritis.—Rosenberg and his co-workers reviewed data on cases of rheumatoid arthritis in which necropsies were done at the Mayo Clinic. Their aim was to establish the manner in which death occurred. The series comprises 30 cases. The 30 deaths in this series are listed under three headings: (1) those which seemingly resulted from the rheumatoid arthritis itself (10 cases), (2) those which were related to treatment of the arthritis (8 cases) and (3) those from causes unrelated to the arthritis or its treatment (12 cases). An unexpectedly high incidence of rheumatic heart disease was discovered. This condition was present in 16 of the 30 patients. It was often serious and was responsible for the deaths of 7 patients. In the other 9 of the 16 cases in which rheumatic heart disease was present it was not responsible for death. Pulmonary diseases were the most common causes of death in this series. These were of varying character including pneumonia, chronic suppuration, pulmonary embolism, fat embolism and massive collapse. Renal lesions were responsible for 3 deaths. Acute pyelonephritis with oliguria was present in 2 cases and fatal amyloid degeneration in 1. Prolonged diarrhea of an unknown origin was responsible for 2 of the deaths. In 5 of the 30 cases death resulted from miscellaneous causes. These included cinchophen hepatitis, carcinoma and violence. In 2 cases the exact manner of death was unknown.

Cholesterol in Coronary Arteriosclerosis.—Observations on experimental animals indicated that hypercholesteremia of nutritional origin is a factor in the development of atherosclerosis. Shaffer attempted to determine the effect of the nutritional factor in persons without manifest endocrine disturbances on the incidence of coronary arteriosclerosis as diagnosed by clinical methods. Records of over 1,000 patients with duodenal ulcer were reviewed, and 100 patients were selected for study. The 100 patients were in the age period of 45 to 65; 95 of these were men. All of them had been under treatment for an ulcer for not less than five years. The majority had been treated intermittently and periodically for ten to fifteen years. Treatment consisted of the use of milk and cream and antacids, no patient being selected for study who had not relied on the use of milk and cream for the relief of discomfort. It was considered that prolonged intermittent use of milk implied an abnormal increase in cholesterol in the diet and met the requirement of a nutritional factor. Five hundred patients were used as a control. These were also consecutively selected from hospital admissions and were in the same age period, 45 to 65, with the same sex ratio, 475 males and 25 females. None had received peptic ulcer treatment or had any manifest endocrine

disturbance. The incidence of coronary arteriosclerosis was identical in the two groups. The author concludes that the nutritional role of cholesterol in the genesis of human atherosclerosis is of doubtful significance unless there is an associated endocrinopathy.

Archives of Ophthalmology, Chicago

31:367-452 (May) 1944

Intracapsular Cataract Extraction: Statistical Survey of 500 Consecutive Cases. F. A. Davis.—p. 367.
*Changes in Fundus of Eye in Various Forms of Arterial Hypertension. H. Elwyn.—p. 376.
Nervous Factor in Origin of Simple Glaucoma. O. Lowenstein and M. J. Schoenberg.—p. 384.
Pupillary Reactions of Seemingly Unaffected Eye in Clinically Unilateral Simple Glaucoma: Pupillographic Contributions to Diagnosis of Glaucoma in Preclinical Stage. O. Lowenstein and M. J. Schoenberg.—p. 392.
Causes of Impaired Vision in Recently Inducted Soldiers. F. H. Theodore, R. M. Johnson, N. E. Miles and W. H. Bonser.—p. 399.
Conjunctivitis and Keratitis of Allergic Origin: Analysis of 54 Cases. W. O. Linhart.—p. 403.
Cornea: VI. Permeability Characteristics of Excised Cornea. D. G. Cogan, E. O. Hirsch and V. E. Kinsey.—p. 408.
Experimental Studies of Ocular Tuberculosis: VIII. Study of Increased Resistance to Reinoculation After Recovery from Ocular Tuberculosis Shown by Immune-Allergic Rabbit. A. C. Woods and E. L. Burky.—p. 413.
Leptotrichosis Conjunctivae: A Further Report. S. R. Gifford and A. A. Day—p. 423.
*Fundus Oculi in Urologic Diseases Associated with Systemic Hypertension. M. Cohen.—p. 427.

Changes in Fundus of Eye in Arterial Hypertension.—Elwyn lists the changes in the fundus of the eye that may be observed during hypertension and says that the pathologic basis of these changes may be described as follows: (1) for the edema, transudation of fluid from the capillaries into the substance of the retina; (2) for the cotton wool patches, accumulations of precipitated fibrin and serum; (3) for the hemorrhages, the presence of blood in the various layers of the retina, especially in the inner layers; (4) for the sharply defined white spots, deposits of hyalin, mixed with lipids and with lipid-containing fat granule cells in the deeper layers of the retina, and for some of the more superficial white spots, a ganglioform swelling of segments of nerve fibers in the nerve fiber layer (5) for the glistening white spots, deposits of lipid and lipid-containing fat granule cells, and for the star shaped figure in the macular area deposits of hyalin and lipids along the fibers of the layer of Henle, which radiate from the macula. The changes in the retinal vessels are either functional, resulting in contraction of the arteries, or organic. The organic changes are due to either aging of the vessels or to arteriosclerosis. Only some cases of hypertension show all of the enumerated changes; in others some of them are present, and, again, in other cases perhaps none at all. In uncomplicated essential hypertension in its benign form the retinal arteries are not contracted. The changes in the fundus of the eye are only those of aging and sclerosis of the retinal vessels. In the later stages occur complications, such as a few hemorrhages, occasionally a few white spots and occlusion of branches of the central vein and artery, occasionally of the main vessels as well. A more important complication is temporary arteriospastic retinitis as part of a temporary arterial contraction in many organs. In malignant renal sclerosis or the malignant phase of hypertension all the signs of arteriospastic retinitis are apparent, that is, narrowed arteries, edema, cotton wool patches, hemorrhages, hyaline and lipid deposits and the star shaped figure in the macular area. Edema of the optic disks is also present. Because the malignant stage of essential hypertension is preceded by a long period of high blood pressure, aging and sclerosis of the retinal vessels are also seen, with angular tortuosity of the vessels, irregularity of the lumen and apparent arteriovenous compression. The subendothelial hyalinosis is also observed in some of the arteries of the retina and gives the vessels their white, "silver wire" appearance. In hypertension associated with eclampsia the changes in the fundus of the eye indicate the severity of the arterial contraction. As a guide to the advisability of artificial termination of the pregnancy the ocular changes are of less importance than the continuous observation of the state of the blood pressure. The arteriospastic retinitis produced in the presence of adrenal or pituitary tumors may resemble that of malignant renal sclerosis.

Fundus Oculi in Urologic Diseases with Hypertension.—Cohen presents a case of pyelonephritis in which examination of the fundus resulted in the diagnosis of neuroretinopathy. Nephrectomy and absolute rest of seven months had no beneficial effect on the secondary hypertension. The increased lesions in the fundus and the impairment of renal function indicated progression of the underlying disease. Sympathectomy improved the renal function and reduced the hypertension as well as the edema of the disk. The author also presents a case of hydronephrosis and a case of polycystic kidney. In both cases he describes and illustrates the fundus changes. The patient with hydronephrosis like the one with pyelonephritis had a neuroretinopathy of inflammatory origin, while in the case of polycystic kidney the diagnosis was bilateral chorioretinal arteriosclerosis of noninflammatory origin. The author concludes that urologic diseases, accompanied by persistent high blood pressure, usually lead to lesions of the fundus. The changes in the fundus are indicative of the severity of the underlying hypertensive vascular disease. A report on the examination of the fundus should accompany the records of cases of urologic diseases with persistent hypertension, as it is an additional aid to the diagnosis and prognosis of the disease.

Arizona Medicine, Phoenix

1:101-164 (May-June) 1944

Medicine on the March. D. L. Mahoney.—p. 117.
Air Evacuation. P. Holbrook.—p. 119.
Modern Attitudes in Hemolytic Anemia. G. Carpenter.—p. 121.
History and Causes of Silicosis. J. W. Flinn.—p. 125.
"Nurses and the War." Frieda Braun Erhardt.—p. 127.

Cancer Research, Baltimore

4:337-400 (June) 1944

Studies in Cancer: VIII. Stilbestrol and Certain Steroids in Relation to Tumor Growth Resistance. J. W. Howard, L. T. Janzen and W. T. Salter.—p. 337.
Id.: X. Oxidative Capacity of Tumors. Nelicia Mayer.—p. 345.
Atypical Cell Proliferation in Anterior Lobe Adenomas of Estradiol Treated Rats. H. Selye.—p. 349.
*Heterologous Transplantation of Human Cancers. H. S. N. Greene and P. K. Lund.—p. 352.
Immunity Reactions Obtained with Transmissible Fowl Tumor (Olson). B. R. Burmester and C. O. Prickett.—p. 364.
Effect of Aromatic Compounds on Ascorbic Acid Content of Liver in Mice. E. L. Kennaway, N. M. Kennaway and F. L. Warren.—p. 367.
On Role of Thymus, Spleen and Gonads in Development of Leukemia in High Leukemia Stock of Mice. D. P. McEndy, M. C. Boon and J. Furth.—p. 377.
Effect of Adrenalectomy on Susceptibility of Rats to Transplantable Leukemia. E. Sturm and J. B. Murphy.—p. 384.

Heterologous Transplantation of Human Cancers.—Greene and Lund direct attention to the capacity of some human tumors to survive and to grow in the anterior chambers of the eyes of animals. The failure of later attempts to transplant benign tumors in this manner suggested that heterotransplantability might be a characteristic property of cancer. Accordingly a series of experiments was instituted in an attempt to investigate this suggestion and, although the results to date are confirmatory, the group of benign tumors tested is not yet sufficiently inclusive to allow generalization. However, a fairly comprehensive group of cancers has been successfully transplanted. Since previous experience had shown the superiority of the guinea pig over the rabbit as a host for human tissue, this species was used exclusively in the present series of experiments. A series of 10 human cancers, including a fibrosarcoma of the chest wall, an adenocarcinoma of salivary gland tissue, a chondromyxosarcoma of the larynx, a malignant melanoma, an epidermoid carcinoma of the buccal mucosa, an adenocanthoma of the urethra, a mammary fibrosarcoma, an undifferentiated carcinoma of the lung, an epidermoid carcinoma of the lung and a chordoma have been successfully transferred to the anterior chamber of the eyes of guinea pigs. The transplants grow progressively in the alien host and bear a close histologic resemblance to the original tumors. The authors suggest that the ability to grow cancer in lower animals affords an approach to many other problems associated with human tumors. After successful primary transplantation the cancer can be carried by serial passage to new generations of animals and subjected to a variety of investigations not permissible during residence in the human host. After preliminary growth in the anterior chamber, transfer to other body regions is readily effected.

Gastroenterology, Baltimore

2:307-384 (May) 1944

Volvulus and Incarceration of Stomach in Diaphragmatic Hernia with Complete Acute Gastric Obstruction: Operative Recovery with Obliteration of Hernial Sac by Tamponade. M. G. Vorhaus and DeW. Stetten.—p. 307.

Gastroscopic Picture of Hypertrophic and Atrophic Gastritis. R. Schindler.—p. 316.

*Level of Vitamin B Complex in Diet at Which Detectable Symptoms of Deficiency Occur in Man. E. E. Foltz, C. J. Barborka and A. C. Ivy.—p. 323.

Duodenal Ulcer Developing in Man Following "Histamine Desensitization." G. McHardy and D. C. Browne.—p. 345.

*Further Studies on Effect of Sodium Alkyl Sulfate on Peptic Activity. J. B. Kirsner and E. H. Spitzer.—p. 348.

Excretion of Ingested Succinylsulfathiazole in Material Drained from Human Biliary Tract. A. H. Aaron and R. S. Hubbard.—p. 354.

Level of Vitamin B Complex in Diet Deficiency Level.—Foltz and his associates present data which indicate the level of thiamine and riboflavin, especially the former, in the diet at which evidence of deficiency was detectable by a decrease in work output and the manifestation of subjective symptoms. Four subjects residing in a hospital and receiving a diet containing measured quantities of thiamine and riboflavin were trained during a period of from nine to twelve months on a bicycle ergometer, their work output during a double work period of rapidly exhausting work being recorded. During this control and training period the daily diet contained 0.43 to 0.59 mg. of thiamine per thousand calories of food, or a total daily average intake of thiamine of 1.44 mg. The urinary excretion of thiamine and riboflavin and the thiamine blood level was measured; in addition the blood pyruvic acid values were determined between seven and eight minutes after the conclusion of the last work period. The subjective complaints of the subjects were recorded as well as leg muscle tenderness and pain. A decrease in appetite occurred within three weeks in all subjects when the thiamine intake was reduced to from 0.33 to 0.38 mg. per thousand calories. A decided decrease in appetite and work output and increase in muscle tenderness and pain and desire for sleep, or fatigue, and a deterioration in mental attitude, nervous stability and alertness did not occur until four weeks after the thiamine intake had been reduced to from 0.17 to 0.21 mg. per thousand calories. The daily thiamine excretion in the urine ranged from 5 to 20 micrograms, but the riboflavin excretion except for a brief period in 1 subject did not fall below 200 micrograms. The signs and symptoms of deficiency disappeared promptly after the addition of a yeast concentrate to the diet which yielded a total daily intake of 15.5 mg. of thiamine and 6.15 mg. of riboflavin. The blood pyruvic acid values remained relatively constant and yielded no unequivocal information. In confirmation of the observations of others, the authors conclude that a daily dietary intake of approximately 0.20 mg. per thousand calories of thiamine (a total daily intake of about 0.6 mg.) results in signs and symptoms of a dietary deficiency within eight weeks. They think that the minimum daily requirement of thiamine of young men ranges from 0.33 to 0.45 mg. per thousand calories.

Effect of Sodium Alkyl Sulfate on Peptic Activity.—Kirsner and Spitzer present additional data concerning the action in vitro of sodium alkyl sulfate on the peptic activity of human gastric juice and of a standard pepsin solution. Peptic activity and p_H were determined by methods previously indicated. The standard pepsin solution was prepared by transferring 625 mg. of granula pepsin (Pfannstiehl) to a 500 cc. volumetric flask and dissolving in 1/20 molar hydrochloric acid. The solution was then diluted to volume with 1/20 molar hydrochloric acid. The results are expressed in terms of the degree of inhibition of peptic activity as compared with the control values and are recorded in tables. On the basis of their observations the authors arrive at the following conclusions: 1. Sodium alkyl sulfate greatly inhibits in vitro the peptic activity of human gastric juice and of a standard pepsin solution. 2. Optimum inhibition of the peptic activity of a standard pepsin solution at p_H 1.70 is obtained with about two and one-half minutes' incubation at a temperature of approximately 30 to 38 C. 3. The inhibition of peptic activity by sodium alkyl sulfate is apparently an irreversible effect. 4. Lactic acid in 0.2 cc. quantities exerts a slight protective action against the inhibiting effect of sodium alkyl sulfate. Similar amounts of formic, caprylic and acetic acids are ineffective in this respect. 5. Triacetin ethyl butyrate, ethyl caprylate, ethyl laurate, ethyl myristate and sodium taurocholate in 0.1 cc. quantities exert a moderate protective action against the inhibiting effect of sodium alkyl sulfate.

Journal of Allergy, St. Louis

15:163-244 (May) 1944

Studies in Hypersensitiveness of Mucous Membrane: V. Comparative Studies of Skin and Ophthalmic Reactions in Hay Fever Patients Presenting Constitutional Reactions. H. Sherman and Bessie Baron.—p. 163.

Arthus Type of Sensitivity to Liver Extract. S. E. Rynes and L. M. Tocantins.—p. 173.

Causes of Hay Fever Occurring Between Grass and Ragweed Seasons. R. Chobot and H. D. Dundy.—p. 182.

Contact Dermatitis Resulting from Manufacture of Synthetic Resins and Methods of Control. S. D. Lockey.—p. 188.

Disposition of Soldiers with Bronchial Asthma. R. I. Alford.—p. 196.

Consideration of Some Allergy Problems: I. Allergic Dermatitis (Eczema). R. A. Cooke.—p. 203.

Id. II. Serologic Studies of Skin Reacting Allergies (Hay Fever Type). R. A. Cooke.—p. 212.

Volumetric Incidence of Atmospheric Allergens: II. Simultaneous Measurements by Volumetric and Gravity Slide Methods; Results with Ragweed Pollen and Alternaria Spores. O. C. Durham.—p. 226.

Clinical Evaluation of Ascorbic Acid in Treatment of Hay Fever. S. Hebald.—p. 236.

Journal of Lab. and Clinical Medicine, St. Louis

29:561-672 (June) 1944

Acute and Chronic Toxicity of Isopropyl Alcohol. A. J. Lehman and H. F. Chase.—p. 561.

Treatment of Pneumococcal Pneumonia with Sulfamethazine: Preliminary Report. E. H. Loughlin, R. H. Bennett and Mary E. Flanagan.—p. 568.

Pathologic Changes Produced by Prolonged Administration of Sulfapyrazine and Sulfamethyldiazine (Sulfamerazine) in Kidneys of Rabbits as Compared with Sulfathiazole and Sulfadiazine. F. T. Callomon, with technical assistance of Loraine Groskin Linton.—p. 574.

Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis. J. L. Bohan and F. B. Lusk.—p. 585.

Association of Acute Interstitial Pancreatitis with Acute Pneumococcic Mural Endocarditis. A. Trasoff and D. R. Meranze.—p. 590.

Nodal Rhythm and Bundle Branch Block Following Aspirin Hypersensitivity. N. Bloom and H. Walker.—p. 595.

Transient T Wave Inversion Following Paroxysmal Tachycardia. S. L. Zimmerman.—p. 598.

*Cotton Hose as Vehicle for Fungicide in Treatment of Athlete's Foot. Phoebe J. Crittenden and Luella S. Joiner.—p. 606.

Effect of Heat Produced by Short Wave Diathermy on Activity of Muscle. W. W. Tuttle and Lucille Fitts.—p. 609.

Effect of Artificially Induced Fever on Anaphylactic Shock in Actively Sensitized Guinea Pigs. R. Y. Gottschall, P. deKruif, H. E. Cope and D. Laurent, in collaboration with W. M. Simpson, H. W. Kendell and D. L. Rose.—p. 614.

Clumping of Erythrocytes in Hayem's Diluting Fluid: Grave Prognostic Sign. E. D. Angelis and Mildred Huntsinger.—p. 624.

Reactions in Blood and Organs of Dogs on Intravenous Injection of Solution of Hemoglobin. W. C. Hueper.—p. 628.

Assay of Renin Substrate by Low Temperature Incubation with Renin. L. A. Sapirstein, Rachael K. Reed and F. D. Southard Jr.—p. 633.

Cotton Hose Impregnated with Fungicide in Treatment of Ringworm.—The good results in the treatment of fungous infections of the hands and feet with copper sulfate driven into the skin by iontophoresis gave Crittenden and Joiner the idea of impregnating cotton hose with a fungicide for use in the treatment of ringworm not only because hose are in close contact with the foot during waking hours but also because treated hose bring the fungicide in contact with the shoe lining, which frequently is a source of reinfection. The experimental work was begun using solution of copper sulfate for impregnating the cotton hose. Later copper acetate was substituted for copper sulfate in cases not responding satisfactorily. Clean dry cotton socks of good grade were soaked for thirty minutes in the solution of copper salts at 40 C. After drying, the hose were ready for wear. The subjects cooperating in the study were 17 men and 1 woman, each of whom was afflicted with ringworm. They wore cotton hose impregnated with copper sulfate or acetate for periods of from one and one-half to ten months. The skin of 6 appeared normal, 11 showed improvement and 1 was worse at the end of the experiment. The acetate seemed to be more beneficial than the sulfate.

New England Journal of Medicine, Boston

230:595-624 (May 18) 1944

History of Discovery and Isolation of Female Sex Hormones. G. J. Newerla.—p. 595.
Sweat as Culture Medium for Fungi. T. Cornbleet and Esther Meyer. —p. 604.
Gynecology: Carcinoma of Cervix. J. V. Meigs.—p. 607.

230:625-656 (May 25) 1944

Surgical Treatment of Esophageal Atresia and Tracheoesophageal Fistulas. W. E. Ladd.—p. 626.
W. E. Ladd.—p. 626.
*Hereditary Hemorrhagic Telangiectasia: Analysis of Capillary Heredopathies. K. Singer and W. Q. Wolfson.—p. 637.
Endoscopy. E. B. Benedict.—p. 642.

Hereditary Hemorrhagic Telangiectasia. — Singer and Wolfson report a family in which typical lesions of hereditary hemorrhagic telangiectasia were present together with a positive tourniquet test. The first patient was a woman aged 80 who came under observation because of repeated spontaneous epistaxis for a period of forty years. Investigation revealed a strong hereditary tendency to telangiectasia. The woman's father had had telangiectasia and epistaxis. Reports are available on 66 members of the family, 16 of whom present telangiectasia. Telangiectasia was present in the first generation in one line but not in the second or third, and it reappeared in the fourth generation. A diagram of the family tree shows that the 2 cases described by the authors concerned nieces of the woman mentioned in the first case report. In comparing case 2 with case 1 it was noted that the tendency to bleed from the telangiectases and the tendency to easy bruising were more severe in the former. Epistaxis was more severe and the tourniquet test was more strongly positive in the latter. In case 3 the tendency to easy bruising was even more prominent and the tourniquet test was the most strongly positive of the 3 cases. A positive tourniquet test in a syndrome in which a negative tourniquet test is ordinarily considered a diagnostic criterion is noteworthy. Although only 3 members of the family could be examined, the occurrence of the unusual combination of a positive tourniquet test with telangiectasia in all of them makes it likely that both abnormal capillary manifestations were present on a hereditary basis. Whether the association of a positive tourniquet test with hereditary telangiectasia is fortuitous or is indicative of a more fundamental capillary disturbance presents a problem that necessitates analysis of the clinical pathology of capillary heredopathies. An abnormal contractility response of a capillary to injury as expressed by a prolonged bleeding time and an abnormal capillary fragility to pressure, as seen by a positive tourniquet test, represent independent variables that may be singly or simultaneously involved. Pseudohemophilia is characterized by a prolonged bleeding time but a negative tourniquet test, and hereditary purpura simplex by a normal bleeding time but a positive tourniquet test. Combinations of the two types exist. Hereditary hemorrhagic telangiectasia is a localized gross abnormality of capillaries usually not accompanied by systemic capillary dysfunction. The family reported here represents such a combination of localized gross deviation of capillary structure and increased capillary fragility. The diagnosis of hereditary capillary syndromes should depend on physiologic analysis and not on rigidly demarcated types of disorders.

230:657-684 (June 1) 1944

*Thiouracil in Treatment of Thyrotoxicosis: Report of 72 Cases. R. H. Williams and H. M. Clute.—p. 657.
Favus in Massachusetts: Report of 2 Cases. G. E. Morris.—p. 667.
Endoscopy (concluded). E. B. Benedict.—p. 669.

Thiouracil in Treatment of Thyrotoxicosis.—Williams and Clute used thiouracil in the treatment of 72 patients with thyrotoxicosis. The 59 patients who had not had iodide therapy for one month or more were divided into three groups according to the basal metabolic rate. The decline in the basal rate was more rapid in the severe cases (basal metabolic rate + 55 to 89 per cent) than in the others but required an average of five weeks to become normal, whereas in the moderately severe cases (+ 35 to 55 per cent) only four weeks was necessary and in the mild ones (+ 15 to 35 per cent) only three weeks. The lowering of the basal metabolic rate of patients who had taken iodide until the thiouracil treatment was started was slower. All patients, however, regardless of the type of thyrotoxicity or of previous treatment, eventually attained a normal metabolic rate and a remission of the disorder. Thirty-five patients were treated with thiouracil for more than four months and 16 for more than six months. Patients maintained a normal basal metabolism, though in 4 who discontinued therapy a relapse occurred, but a remission was again obtained with thiouracil treatment. Although a transient increase in the size of the thyroid occurred in several cases, in the majority a decrease in size resulted. A few patients with malignant exophthalmos experienced an exacerbation in this process under thiouracil therapy, but with a decrease in the dosage of thiouracil and the use of desiccated thyroid an improvement resulted. One patient developed agranulocytosis; other complications consisted of a morbilliform rash, urticaria, allergic arthritis, edema of the legs, vomiting and enlargement of the submaxillary salivary glands. In the first 30 patients treated the initial daily dosage of thiouracil was usually 1 Gm., but with subsequent patients it was 0.6 Gm. daily or 0.4 Gm. In most cases, however, the dose was reduced to 0.2 Gm. daily over a period of about six weeks. Single doses usually consisted of 0.2 Gm., although they were sometimes only 0.1 Gm. When several doses were given daily they were spaced evenly. With the range of dosage employed, the drug has not been found to accumulate appreciably in the blood in spite of the presence of severe disease of the kidneys and liver. For reasons other than an unsatisfactory response in the toxic manifestations of the disease, 22 patients were subjected to thyroidectomy. The operative and postoperative course was relatively smooth, particularly in the patients treated with thiouracil for three weeks or longer preceding operation. A chemical analysis of these glands showed a great variation in the amount of drug present. There was no correlation of the therapeutic response with the level of the drug in the gland. The pathologic alterations in the thyroid gland resulting from thiouracil treatment are quite unlike the changes found after iodide therapy.

United States Naval Med. Bulletin, Washington, D. C.

42:1233-1476 (June) 1944. **Partial Index**

*Dengue: Analysis of Clinical Syndrome at South Pacific Advance Base. F. H. Stewart.—p. 1233.
Eosinophilia in South Pacific. H. C. Allen.—p. 1241.
Function of Medical Officer in Battle Zones. L. K. Ferguson.—p. 1269.
Concentrations of Sulfonamides in Wound Exudates Following Oral Administration: Experimental Study. W. W. Sager and R. H. Pudenz.—p. 1275.
*Advantages and Limitations of Intravenous Sodium Sulfathiazole. G. Milles.—p. 1283.
Laboratory and Field Studies of Glycols and Floor Oiling in Control of Air Borne Bacteria. A. P. Krueger and others.—p. 1288.
*Sprained Ankles. J. M. Wright, L. O. Parker and T. R. Lehan. —p. 1309.
Arthrotomy of Knee: Review of 50 Cases. E. M. Anderson.—p. 1314.
Myotomy in Repair of Divided Flexor Tendons. L. Blum.—p. 1317.
Reconstruction of External Ear: Conservation of Avulsed Portion. P. W. Greeley.—p. 1323.
Marsupialization of Pilonidal Cysts. R. J. Coffey.—p. 1326.
Pilonidal Cyst: Removal by Transverse Incision—Preliminary Report. F. H. Johnson and S. J. Gorham.—p. 1330.
Acute Appendicitis Afloat: Clinical Study. C. N. Cooper.—p. 1334.
Nonspecific Infective Granuloma of Appendix: Review of Literature, with Case Report. J. I. Anton and M. Weintrob.—p. 1337.
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Corneal Graft or Tattooing with Iridectomy? With Brief Report on Corneal Studies After Electrocution. A. A. Knapp.—1366.
*Postvaccinal (Yellow Fever) Jaundice: Report of Fatal Case. J. A. deVeer and M. J. Matzner.—p. 1381.

Dengue at a South Pacific Advance Base.—Stewart says that over 25 per cent of the military population of an island contracted dengue. There were no deaths, but the disease caused 80,000 sick days. Mosquitoes of the Aedes group were found in abundance on the island. Frontal headache and pain in or behind the eyes and pain low in the back are characteristic early symptoms. Chilly sensations make the sufferer use a blanket on a hot day; the chill is a true teeth-chattering chill which lasts several minutes. There may be aches and pains in or about several joints and in the muscles of the legs, arms and neck. A chain of pea size lymph nodes is felt at the base of the neck over the posterior scalenus muscles. These nodes

are not tender, vary in size and are not found in the suboccipital region as is the case in German measles. The pulse is moderately rapid during the first day, but later it becomes slow and in spite of high fever there is bradycardia. The temperature curve and the discomfort run parallel, but the pulse remains slow. During the first day or two the fever is high, but often on about the third day the temperature falls to a normal level for from several hours to two days. During this lull the patient feels better. Usually on the fourth or fifth day the fever returns. This second spike of fever is often higher than the first. Recovery is by crisis. Other types of temperature curves occur, but regardless of the type of curve the fever will not last beyond seven days and more often is over by the fifth day. This is a disease of one week's duration. The various skin manifestations are classified as rash A and rash B. Dengue must be differentiated from infectious jaundice, German measles, scarlet fever, mononucleosis, malaria, bacillary dysentery, appendicitis, mumps, meningitis, influenza, virus pneumonia and catarrhal fever. Treatment of dengue is entirely symptomatic. Reassurance, rest in bed and sedatives are important. Acetylsalicylic acid seems to control the discomfort but has the disadvantage of causing excessive sweating. Phenobarbital 1½ grains (0.1 Gm.) at bedtime is often not sufficient. Codeine ½ grain (32 mg.) combined with acetylsalicylic acid is required in most cases. For several days after discharge there is a feeling of fatigue and inability to carry on usual duty. This rarely lasts longer than a week. Despondency and irritability are often accompanying symptoms but almost never last longer than two weeks. The incubation period is as short as five days. No proved recurrences have been observed in a period of six months.

Intravenous Sodium Sulfathiazole.—Milles points out that conjugation of sulfathiazole to the acetylated form occurs chiefly in the liver. Taken by mouth, the drug is absorbed into the portal circulation and passes through the liver in its entirety, exposing it to acetylation before it reaches the general circulation. Administered intravenously, little of the drug reaches the liver until it has traversed the peripheral circuit, thereby exposing the tissues to the peak concentration of the drug in its original form. The author reviews observations on patients treated intravenously with sodium sulfathiazole. The drug was administered by syringe in from 5 to 20 per cent solution; the maximum dose was 3 Gm. Local tissue irritation was not noted. The daily urinary output was measured and in those who were given the drug only intravenously was examined microscopically for blood and crystals on one or more occasions. In previous observations, levels of approximately 20 mg. per hundred cubic centimeters of blood were obtained immediately after the intravenous administration of 3 Gm. of sodium sulfathiazole, falling to less than 1 mg. at the end of twenty-four hours. Observations on 46 patients who received single or multiple doses of sulfathiazole intravenously, some of whom also received sulfonamides orally, are recorded in tables. Hematuria without crystalluria occurred in 1 instance, suggesting a direct toxic effect of the drug on the kidneys. Vomiting occurred during or shortly after the administration of the drug in 3 instances. It was very likely due to the speed with which the solution was injected. Headache occurred in 1 subject who had noted the same symptom when the drug was administered orally. One patient who displayed intolerance to the drug when administered orally, as indicated by fever and vomiting, tolerated the drug intravenously without the slightest reaction. Crystalluria was not noted in any instance. There were 15 in which the drug achieved good clinical results with a total dose smaller than would be expected to be effective orally. In 9 cases the drug achieved good clinical results when administered intravenously after sulfathiazole had apparently failed when given by mouth. The drug was ineffective in 5 cases, and there were 16 cases in which the results were equivocal. The author does not deprecate the use of sulfonamides orally or locally. He urges that in those diseases and injuries in which there is a time race with infection the drug should be used intravenously initially. As in all sulfonamide therapy, regardless of the route by which the drug is administered the fluid intake must be maintained; the urinary output must be measured and recorded; the blood picture must be studied if the drug is continued for more than forty-eight hours.

Sprained Ankles.—Wright and his associates say that if an injured ankle is x-rayed and no fracture or dislocation found, a diagnosis of sprain is usually made. They show that the pathologic changes in sprained ankles are of two types: (*a*) complete ligamentous rupture; (*b*) hematoma with slight ligamentous damage. The differential diagnosis can be made only by careful physical examination or by anteroposterior x-ray inspection during manipulation under anesthesia. The best treatment for complete ligamentous rupture is the application of a walking cast for at least six weeks. Reconstructive surgery may be required in chronic cases. The essential treatment for the simple sprained ankle without serious ligamentous injury is (*a*) early pressure bandage, (*b*) limitation of the hematoma and swelling by procaine injection with massage and early use, (*c*) contrast baths or intermittent traction and massage for persistent swelling and stiffness.

Postvaccinal (Yellow Fever) Jaundice.—An increased incidence of jaundice was observed by deVeer and Matzner at a naval hospital in the spring of 1942. Thirty patients with jaundice were studied within a period of two months. All but 1 recovered and, with this exception, presented a clinical picture indistinguishable from the commonly termed "acute catarrhal" or "infective jaundice" of unknown etiology. The patient who died was a seaman aged 20 who was admitted to the hospital with the complaint of anorexia, vomiting, jaundice, malaise and abdominal discomfort. His past history was irrelevant. About four months prior to the onset of illness he had been immunized with yellow fever vaccine. He appeared to improve during the first few days of hospitalization under a regimen similar to that employed for other icteric patients, but then suddenly, without warning, he became very drowsy and unresponsive to questioning. The jaundice rapidly increased, the icterus index rising to 250. There was no further response to treatment, and the patient's condition became progressively more grave until he died on the eighteenth day of hospitalization (the twenty-sixth day of illness). The necropsy revealed an acute yellow atrophy of the liver in a stage at which both advanced necrosis and regeneration were present, a picture apparently identical in type with that reported in the recent outbreak of jaundice in the Army. The authors review the probable relationship of jaundice to yellow fever immunization by vaccine containing human serum. The risk of postvaccinal (yellow fever) jaundice appears to have been removed by the elimination of the human serum component formerly employed in the preparation of yellow fever vaccine. In the event of future outbreak of jaundice, it is recommended that any possible relationship to the administration of yellow fever vaccine, whole blood, plasma or related biologic products be investigated in the hope of discovering the presence of some as yet unrecognizable icterogenic agent.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

52:245-286 (June) 1944

Formation of Artificial Vagina: Experiences with Three Different Corrective Procedures. H. K. Marshall.—p. 245.
Final Domicile of Appendicular Stump Following Invagination with Purse String Suture. W. M. Hayes.—p. 256.
Madura Foot or Mycetoma: Report of 2 Cases. A. Gottlieb.—p. 264.
Accelerated Postpartum Involution of Uterus with Vitamin B Complex Therapy. L. H. Biskind and M. S. Biskind.—p. 266.
Use of Sodium Pentothal and Local Anesthesia in Cesarean Section. R. D. Dunn.—p. 271.
Factors Influencing Lactation. J. C. Brougher.—p. 274.
Emergency Maternity and Infant Care Program: Administration in State of Oregon. J. F. Belz.—p. 278.

West Virginia Medical Journal, Charleston

40:169-208 (June) 1944

Shotgun Wounds of Abdomen. W. M. Warman.—p. 169.
Direct Blood Transfusion in Modern Surgical Practice. C. D. Hershey.—p. 173.
Ambulatory Treatment for Sprained Ankles. J. T. Webber.—p. 176.
Deafness. F. V. Gammage.—p. 179.

40:209-244 (July) 1944

"Beyond the Blue Horizon." R. J. Reed Jr.—p. 209.
Newer Trends in Management of Upper Respiratory Tract Infections. A. R. Hollender.—p. 215.
Growing Children—Our Responsibility. A. E. Amick.—p. 223.
Doctor-Hospital Partnership in Public Relations. C. F. Runyon and R. J. Wilkinson Jr.—p. 233.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:643-676 (May 13) 1944

National Health Service. Report of Council of B. M. A.—p. 643.
Head Injuries Involving Air Sinuses. D. McKenzie.—p. 652.
*Use of Crude Penicillium Filtrate for Local Treatment. J. M. Alston. —p. 654.
Autolysed Yeast in Treatment of Nutritional Macrocytic Anemia. G. R. Sippe.—p. 656.
Famine Edema in Prisoners of War. D. S. Stevenson.—p. 658.

1:677-708 (May 20) 1944

Course of Death Rate from Peptic Ulcer in Great Britain, 1912-1938. H. Tidy.—p. 677.
Treatment of Gas Gangrene. J. D. MacLennan and M. G. MacFarlane. —p. 683.
Fracture of Carpal Scaphoid. J. M. Robertson and R. D. Wilkins. —p. 685.
Epidemic Infective Hepatitis in Gloucestershire. J. S. Cookson.—p. 687.
Experiments on Scabies Prophylaxis. K. Mellanby.—p. 689.

Crude Penicillium Filtrate for Local Treatment.—Alston reports results with local use of untreated filtrate of penicillium in 24 patients. The medium in which Penicillium notatum was grown contained 3 Gm. of sodium nitrate, 0.5 Gm. of potassium chloride, 0.5 Gm. of magnesium sulfate, 0.01 Gm. of ferrous sulfate, 6.5 Gm. of potassium dihydrogen phosphate, 33.5 Gm. of disodium hydrogen phosphate, 40 Gm. of glucose and distilled water to 1,000 Gm. This is sterilized in free steam for one and one-half hours in 200 cc. amounts in 1 liter conical flasks; 5 cc. of a 10 per cent solution of sterile calcium carbonate is added to every 200 cc. of medium before inoculating. The medium should form a depth of not more than 1.5 to 2 cm. in order to expose to air a large surface relative to the volume. Incubation is at a temperature of 24 C. for eight to ten days. The mold forms a thick firm pellicle, and the culture medium below is clear. The fluid medium, after growth, is passed through a Seitz filter and is tested to make sure that the reaction is nearly neutral and that less than 0.1 per cent glucose is left. The filtrate is applied to superficial lesions by gauze soaked in it, by a cream or by portions of the recently grown mold after the fluid medium had been drained away from it. Cavities in bone which are accessible to the surface are packed lightly with gauze soaked in the filtrate and sealed. Deep sinuses in muscle and subcutaneous tissues are treated with indwelling catheters, which are carefully shortened as the sinuses heal from the bottom. Cavities and sinuses are washed out with saline solution before fresh filtrate is left in them. In 19 of the 24 patients treated the filtrate has been successful; in the other 5 success was partial, doubtful or absent. The author concludes that crude penicillium filtrate containing 4 to 10 units of penicillin per cubic centimeter may be used successfully for treating many acute and chronic inflammations by local application.

1:709-738 (May 27) 1944

With the Eighth Army in the Field. C. Donald.—p. 709.
Sensitivity to Liver Extract. J. G. McSorley and L. S. P. Davidson. —p. 714.
Experimental Traumatic Shock. J. Charnley.—p. 716.
*Dicoumarin in Treatment of Puerperal Thrombosis. A. Davis and Margaret Porter.—p. 718.
*Effect of Nicotinic Acid on Postoperative Vomiting. W. W. Mushin and Helen M. Wood.—p. 719.

Dicumarol in Treatment of Puerperal Thrombosis.—Davis and Porter report results of an investigation into the possible value of the anticoagulant principle dicumarol in obstetrics. In all, 43 cases of postpartum thrombosis were treated. They were of every degree of severity, from small saphenous lesions to bilateral femoral blockage. The cases varied so widely in severity that it was impossible to find an exact parallel series for purposes of control, but comparison with the same number of untreated cases showed a great improvement after dicumarol. There were slight but definite amelioration of pain, a fairly rapid diminution of the edema and a shortened average stay in hospital—nineteen as against twenty-eight days. In addition the incidence of pulmonary embolism was lowered from 9 to 4 per cent, and in only 1 case was this of any degree of severity. The drug was well tolerated, and there were no untoward complications and no suggestion of spontaneous hemorrhage. The authors conclude that dicumarol is of value in the particular type of patient they investigated, and in these cases of established thrombosis it would appear to be fairly safe. The freedom from hemorrhagic complications may be due to the normal increase in the coagulability of the blood during the puerperium.

Nicotinic Acid in Postoperative Vomiting.—Mushin and Wood studied the effect of nicotinic acid on postoperative vomiting in two groups of patients. In one group it was given both preoperatively and postoperatively, and in the other as postoperative treatment alone. The doses were 50 mg. two-hourly. A control series was studied. In all three groups as many factors as possible were kept constant. No statistically significant effect on the incidence of postoperative vomiting was observed as a result of administering nicotinic acid.

Lancet, London

1:587-618 (May 6) 1944

State of Men Severely Wounded in Battle. W. C. Wilson.—p. 587.
*Sulfathiazole-Proflavine Powder in Wounds. J. McIntosh, F. R. Selbie, R. V. Hudson, T. Parkes, D. H. Patey, H. L. McMullen and G. C. L. Pile.—p. 591.
*Sulfathiazole-Proflavine Powder in War Wounds. G. Y. Feggetter, —p. 593.
Control of Sepsis in Hospital in North Africa, with Observations on Sulfathiazole-Proflavine Powder in Surgical Wounds. P. B. Ascroft. —p. 594.
Carcinoma of Prostate Treated with Stilbestrol. J. D. Fergusson. —p. 595.
Pentothal Anesthesia in Bronchoscopy. L. Fatti and H. J. V. Morton. —p. 597.
Delayed Rupture of Spleen. H. Bell and G. H. Steele.—p. 598.

Sulfathiazole-Proflavine Powder in Wounds.—According to McIntosh and his collaborators data from experiments, both in vitro and in vivo, indicate that the most effective antiseptic mixture now available for wound disinfection is a powder consisting of 1 part of proflavine and 99 parts of sulfathiazole. In addition to its powerful action on pyogenic cocci this mixture has a high grade of activity against Clostridium welchi, Clostridium oedematiens and Clostridium septicum, the three most frequent causal organisms of gas gangrene. The proflavine enhances the antistaphylococcus action of the sulfathiazole and at the same time affords protection against gram negative organisms. It has also the advantage of being active in serum. The value of the powder could be increased by addition of that ideal wound antiseptic penicillin. In contaminated wounds a thorough surgical toilet must be done before the powder is dusted over the surface of the wound, preferably by insufflating with a blower. The amount used should be just sufficient to give a slight coating on the surface—equivalent to 0.5 Gm. to 4 square inches. Good results have been obtained by treating on alternate days. Wounds usually become dry in four to five days, coinciding with the suppression of the infection. The part of this paper which reviews the clinical application of the sulfathiazole-proflavine powder presents comments on results obtained by Hudson and Parkes, by Patey and McMullen and by Pile. These reports demonstrate the preventive and curative action of the powder in wounds.

Sulfathiazole-Proflavine Powder in War Wounds.—Feggetter describes the results of treating a variety of war wounds with sulfathiazole-proflavine powder. In fresh wounds thorough surgical treatment was carried out, the powder was insufflated and most wounds were sutured completely; some had a small drainage tube inserted into potential dead space for four to seven days. The sutured wounds healed by first intention. In the others a small area of granulation remained around the site of the drainage tube which healed within a week. Older wounds in patients who arrived without preliminary treatment, two to three days after wounding, were already infected and the surgical treatment here consisted of incision of skin, fascia and muscle, removal of foreign matter and insufflation of sulfathiazole-proflavine powder; the wounds were left open without sutures, and large wounds with or without fractures were encased in plaster. These wounds healed well. There were 8 patients with gas gangrene. Of 4 treated elsewhere 3 had amputation and died, and 1 recovered. The other 4 were treated by incision, excision of muscle and insufflation of sulfathiazole-proflavine powder; of these, 3 healed locally and 1 required amputation later for sepsis, the gas gangrene being controlled.

In 50 wounds treated elsewhere the indication for operation was spreading inflammation or persistent suppuration. Following enlarging of the entry wound, removal of foreign bodies and débris, and insufflation of sulfathiazole-proflavine powder, the wound was left open. In all 50 cases the spread of infection was arrested and the wounds quickly healed. In 7 amputations, in some of which the amputation site had to be approached through edematous or frankly purulent muscle, flaps were fashioned, sulfathiazole-proflavine powder was insufflated and wounds were loosely sutured with or without tube drainage; these wounds healed well. Four second degree burns of moderate extent have been treated with sulfathiazole-proflavine powder. There seemed to be much less local infection than in the cases treated with other powders and cream. Complete bacteriologic investigations could not be arranged during the treatment, but sulfathiazole-proflavine powder is certainly the best wound antiseptic that the author used. The local use of sulfathiazole-proflavine powder should enable many wounds to be sutured with safety.

1:619-648 (May 13) 1944

Reflection on Reform in Medical Education. T. Lewis.—p. 619.
Injuries to Main Bile Ducts. G. G. Turner.—p. 621.
*Homologous Serum Jaundice: Transmission Experiments with Human Volunteers. F. O. MacCallum and D. J. Bauer.—p. 622.
Marfanil and Marfanil Prontalbin. G. A. G. Mitchell, W. S. Rees and C. N. Robinson.—p. 627.
Two Cases of Leprosy in London. H. Haber.—p. 629.
Nomenclature of Malnutrition. L. Nicholls.—p. 630.
Pharmacology of Thiourea. D. Campbell, F. W. Landgrebe and T. N. Morgan.—p. 630.

Homologous Serum Jaundice.—MacCallum and Bauer describe attempts to isolate an icterogenic agent from cases of serum jaundice and from a known icterogenic serum obtained from a blood transfusion depot. Experiments were made on animals and on human volunteers. Although the number of subjects used in each group was small, the following tentative conclusions can be drawn: 1. Serum from a presumed case of homologous serum jaundice was icterogenic on the seventh day after the onset of jaundice but not fifty-nine and one hundred and thirty-four days later. 2. A batch of yellow fever vaccine containing pooled human serum obtained from a blood bank produced jaundice in from 30 to 40 per cent of those inoculated with it. Inoculation of the same serum by itself produced hepatitis and jaundice in a similar percentage of volunteers. 3. The icterogenic agent survived heating at 56 C. for one hour and was still very active after storage for fourteen months in the dried state. 4. A number of those inoculated with icterogenic serums showed evidence of liver damage of insufficient severity to produce jaundice. 5. Results obtained on 2 volunteers are not inconsistent with the view that the icterogenic agent present in the blood in homologous serum jaundice is capable of multiplying in tissue culture.

Medical Journal of Australia, Sydney

1:309-332 (April 8) 1944

The Tongue in Medical Diagnosis. D. Anderson.—p. 309.
Plea for Standardization of Lepromin Test. J. W. Fielding and R. G. Cochrane.—p. 313.
Treatment During Convalescence After Head Injury. J. E. Hughes.—p. 316.
Brief Report on Value of Selective Medium of Wilson and Blair for Isolation of Dysentery Bacilli. T. S. Gregory.—p. 319.
Meningitis Due to Haemophilus Influenzae: Review of Treatment. A. G. Nicholson.—p. 320.

1:381-404 (April 29) 1944

Use of Thiourea in Thyreotoxicosis: Report of 8 Cases. F. L. Ritchie and B. L. Geddes.—p. 381.
Cerebrospinal Fluid Protein and Intracranial Tumors. G. Phillips and G. Goswell.—p. 390.
Lead Content of "Normal" Urine. L. A. Meston.—p. 392.

1:405-428 (May 6) 1944

Preventive Medicine: Point of View. G. C. Willcocks.—p. 405.
*Further Observations on Congenital Defects in Infants Following Infectious Diseases During Pregnancy, with Special Reference to Rubella. C. Swan, A. L. Tostevin, Helen Mayo and G. H. B. Black.—p. 409.
Training of Medical Officers for War. M. A. Rees.—p. 413.

Congenital Defects in Infants Following Rubella During Pregnancy.—Maternal rubella in the early months of pregnancy may be followed by congenital defects (cataract, heart disease, deaf-mutism, microcephaly and glomerular sclerosis) in the infants born subsequently. This had been pointed out by Swan and his collaborators in the *Medical Journal of Australia* (**2**:201 [Sept. 11] 1943; abstr. THE JOURNAL, Dec. 25, 1943, p. 1144). Since then the authors have had the opportunity of studying a further series of cases. They report 12 cases of rubella (German measles) during pregnancy. Ten of the subsequently born infants exhibited congenital defects such as cataract, deaf-mutism, heart disease, microcephaly and obliteration of the bile ducts. All of the 10 mothers with congenitally defective children had contracted rubella within the first three months of pregnancy. The mother of an infant with congenital cataract, heart disease and microcephaly was unaware of any disease during pregnancy. One woman who had mumps and rubella at a late stage of pregnancy gave birth to a normal infant. Every effort should be made to acquaint the general public with the possibility that maternal rubella early in pregnancy may be followed by congenital abnormalities in the infants born subsequently. Their reasons are as follows: 1. German measles is looked on as such a mild disease that many patients fail to see a medical attendant. 2. If they were aware of the danger, pregnant women would take every care to avoid contact with patients suffering from rubella. 3. If the disease was prevalent, such women could report to their medical attendants with a view to receiving prophylactic inoculations of serum.

Proceedings of Royal Society of Medicine, London

37:241-308 (April) 1944

Lavoisier and History of Respiration. E. A. Underwood.—p. 247.
Audibility of Radio Voice. T. B. Jobson.—p. 263.
Clinical Observations on Acute Catarrhal Otitis Media. G. D. Hoople and I. H. Blaisdell.—p. 270.
Relative Importance of Periosteum and Endosteum in Bone Healing and Relationship of Vitamin C to Their Activities. G. H. Bourne.—p. 275.
Ossifying Chondrome Replacing Infrapatellar Pad of Fat. P. B. Roth.—p. 279.
Posterior Dislocations of Hip Associated with Fracture. G. Hammond.—p. 281.
Hypermobile Ankle. J. G. Bonnin.—p. 282.

Schweizerische medizinische Wochenschrift, Basel

73:865-888 (July 10) 1943. **Partial Index**

*Dextrose Tolerance Test After Cranial Trauma. H. Roth.—p. 865.
Studies on Sympathetic Nervous System in Persons who Stutter. R. Luchsinger.—p. 868.
Observations on Breast Fed Infants. I. A. Alantar.—p. 870.
Perlingual Administration of Ovarian Hormones. H. von Wattenwyl.—p. 871.
Vitamins and Conserved Milk. M. von der Mühll.—p. 874.
Clinical Aspects and Therapy of B Hypovitaminosis.—A. Kappert.—p. 874.

Dextrose Tolerance Test After Cranial Trauma.—Roth performed sugar tolerance tests on 45 patients with cranial injuries. The usual number of tests made was three or four. All patients with commotio cerebri or with injuries associated with it showed elevated values in dextrose tolerance tests. This disturbance in the carbohydrate metabolism is manifestation of an impairment of the corresponding sympathetic centers. A normal blood sugar tolerance curve, provided the tolerance test is made not later than the third day, rules out a traumatic lesion of the brain. The degree of elevation of the blood sugar values and of the derangement of the blood sugar curve does not parallel the severity of the cerebral lesion. Repetition of tolerance tests at intervals of from four to eight days are more valuable than a single test. The blood sugar curve becomes normalized the sooner, the milder the cerebral commotion. The severity of the commotion is indicated not by the maximal height of the curve but rather by the time that elapses before normalization of the curve. The tolerance test is a more precise indicator of the disturbances caused by the commotio cerebri than are the complaints of the patient. In the majority of cases the blood sugar curve still reveals elevated sugar values when the subjective symptoms have already subsided. In only 2 cases did subjective complaints persist after the sugar curve was normal again, and 1 of the patients was a psychopath. The tolerance curve is positive even in mild cases in which subjective symptoms are absent or obscure. Thus it is of value when the history is inaccurate or unreliable, and even more important from the prognostic and therapeutic points of view. The author allows the patients to get up as soon as the tolerance test curve is normal unless other symptoms contraindicate it. It is no longer necessary to keep patients in bed for three or four weeks. Another advantage is that the test is

objective and an aid in possible medicolegal questions. It is a valuable addition to the classic symptoms but should not be overemphasized to their detriment.

73: 913-936 (July 24) 1943

Effects of Sounds, Particularly Damaging Effects of Sounds on Ear. L. Rüedi.—p. 913.
Late Results After Surgical Treatment of Fractures of Leg. H. G. Bodmer.—p. 917.
Degenerative and Regenerative Action of Sex Hormones on Gonads and Hypophysis of Mature Male Albino Rats. C. A. Joël.—p. 921.
Pneumococcic Meningitis and Chemotherapy. P. Silberschmidt.—p. 922.
*Plasmatic Activator of Prothrombin. R. Feissly.—p. 925.

Plasmatic Activator of Prothrombin.—Feissly says that if a clear plasma is prepared by centrifugation from blood that has been rendered noncoagulable and if then the fibrinogen is extracted, a plasma rest is obtained which contains a thrombin forming system. Plasma rests are capable of producing an active thrombin. The author is concerned with the question Is the plasmatic activator of prothrombin a protease or does the plasma contain an autonomous thermolabile thrombokinase, independent of the plasmatic proteases which are also thermolabile? He presents records of the results of experiments which were carried out to solve this problem. These lead him to the conclusions that (1) an autonomous plasmatic thrombokinase exists, (2) this thrombokinase does not possess proteolytic properties and (3) the plasmatic proteases cannot be considered as activators of prothrombin. The author lists observations which demonstrate the independence of the proteases and of the plasmatic thrombokinase. The proteases are inactivated at 56 C., but a temperature of 60 C. is necessary to inactivate the plasmatic thrombokinase. An "absorbed plasma," free of proteases but with the thrombokinase function still preserved, can be obtained by submitting an oxalated plasma to the action of certain mineral absorbents. A solution containing prothrombin and the proteases of plasma can be obtained by elution of the precipitated absorbent. These and other observations recounted in this report seem to oppose the notion according to which a proteolytic enzyme must be considered as the plasmatic activator of prothrombin. On the contrary, this activator appears to be a substance devoid of proteolytic properties and probably a thermolabile phosphatidoproteic link.

Archivos de Medicina Infantil, Havana

13:3-70 (Jan. Feb. March) 1944. **Partial Index**

*Rheumatic Fever in Cuban Children. R. Pérez de los Reyes, H. de la Torre, J. Labourdette and J. A. Junco.—p. 3.
Typhoid Osteitis: Case. J. G. Cabrera Calderin, R. Pereiras and J. M. Labourdette Scull.—p. 40.

Rheumatic Fever in Cuban Children.—Pérez de los Reyes and his collaborators reviewed the clinical electrocardiographic and orthographic records of 100 children with rheumatic fever observed in the Department of Heart Diseases of a Municipal Hospital for Children in Havana. The incidence was 30 per cent higher in girls than in boys. It was greater for children between the ages of 5 and 11 than in either younger or older children. The disease was rare in children belonging to well-to-do families. It was more frequent in white children than in either mulattos or Negroes. The hyperacute form with death within one or two weeks was observed in 2 girls. The acute form of the disease was observed in 10 boys and 3 girls, the subacute form in 4 boys and 4 girls and the chronic form in 33 boys and 30 girls. Myocarditis occurred in 28 boys and 34 girls, pancarditis in 2 boys and 4 girls, valvulitis in 43 boys and 47 girls and pericarditis in 1 boy and 2 girls. The electrocardiogram was normal in only 8 cases (in 5 boys and 3 girls). There were the following electrocardiographic changes: sinusal arrthymia 6 per cent, complete arrythmia 1 per cent, right deviation of the axis 20 per cent, left deviation of the axis 6 per cent, a P wave either widened or high 9 per cent, a P wave either bifid or biphasic 23 per cent, an increased PR space 20 per cent, a "notched" 2-R-5 complex 15 per cent, bundle-branch heart block 1 per cent, an unleveled ST space 2 per cent, a low voltage T wave 18 per cent, a negative T wave in two leads 7 per cent and auriculoventricular dissociation 3 per cent. Orthodiagram examinations were carried out on 32 boys and 32 girls. The size and form of the cardiac area was normal in 3 boys. It was greatly increased in 14 boys and 5 girls, moderately increased in 13 boys and in 17 girls and slightly increased in 2 boys and 10 girls. Half the number of patients in each group had anemia of either the first or the second degree. In none of the cases had a tonsillectomy been previously performed. Sixteen boys and 18 girls suffered with chronic tonsillitis and 3 boys and 6 girls with local infection in the mouth. Adenoids were observed in 1 boy and 2 girls. One boy had sinusitis and another boy had chronic otitis media. The basic therapy consisted of sodium salicylate, which should be administered at proper doses early in the course of the disease and for as long as it is necessary. Rest of the patients for long periods, removal of focal infection, administration of a proper diet, vitamins, and sojourn of the patients in proper climate are useful adjuvant measures.

Prensa Médica Argentina, Buenos Aires

31:859-906 (May 10) 1944. **Partial Index**

*Weil's Disease Without Jaundice: Case. H. R. Rugiero and L. Charosky.—p. 885.
New Method for Control of Hypoglycemic Coma in Prevention of Irreversible Coma. C. R. Pereyra.—p. 887.
Trilobular Left Lung: Pleuroscopic Diagnosis. O. A. Garre and J. A. Marti.—p. 893.

Weil's Disease Without Jaundice.—Rugiero and Charosky urge agglutination tests for leptospiras as a routine for the diagnosis of atypical forms of Weil's disease. The authors observed 5 cases of the disease at the Penna Institute. The disease was atypical in 1 of the patients. Neither nervous symptoms nor jaundice accompanied the disease. Otherwise the clinical symptoms were typical. The patient lived in a region in which contaminated dogs and rats had been previously found. The agglutination test for Leptospira canicola was strongly positive (1:200).

The Chinese Medical Journal, Chengtu

61: No. 2 (Jan.) 1943. **Partial Index**

*Changing Concepts Regarding Etiology and Treatment of Peptic Ulcer. A. E. Best.—p. 47.
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Changing Concepts in Etiology and Treatment of Peptic Ulcer.—Best reviews the etiology of peptic ulcer and favors the vascular theory. The formerly popular antacid method of treatment is going out of favor. From observations on 37 cases a regimen is offered which consists of frequent bland meals, sufficient exercise, emotional control, adequate warmth and minimal or preferably no medication.

Scarlet Fever.—Fan and Pi say that during the past seven years two epidemics of scarlet fever occurred in Tsinan. This report deals with an analysis of 309 patients with scarlet fever observed in the Cheeloo Pediatric Division between 1928 and 1937. Scarlet fever was rare in infants of less than 1 year. Most of the patients were from 2 to 6 years of age. A single throat culture revealed Streptococcus haemolyticus in 80 per cent of the cases. The onset was abrupt. Fever, sore throat, vomiting and skin rash were the common early symptoms. Convulsions, abdominal pains, chills and delirium were uncommon. Complications such as tonsillitis, cervical abscesses, otitis media and nephritis were fewer in the serum treated group. There was 1 girl who had two attacks of scarlet fever within four years. Five patients with nephritis completely recovered. The mortality rate for serum treated patients was 13.9 per cent and for non-serum treated patients 24.6 per cent. Serum sickness occurred in 33⅓ per cent of the 72 serum treated patients. The source of infection could be determined for 70 patients. Fifty of these contracted the disease from their family members and 20 from their school mates or neighbors. Of 95 adults exposed to scarlet fever, 28 contracted the infection and 5 died. Of 233 children exposed to scarlet fever 95 contracted the disease, and of these 32 died.

Book Notices

Medicine and the War. Edited by William H. Taliaferro. Cloth. Price, $2. Pp. 193, with illustrations. Chicago: University of Chicago Press, 1944.

This book owes its origin to a series of lectures given by members of the Division of the Biological Sciences of the University of Chicago in the spring of 1943 under the sponsorship of the Charles R. Walgreen Foundation for the Study of American Institutions. The various subjects (historical background, food, chemotherapy, malaria, insect carriers, shock and blood substitutes, aviation medicine, cerebral injuries, psychiatry and chemical warfare) are well chosen and arranged in a logical sequence. The result is a well rounded picture of medical advances important in modern warfare and, on the other hand, of the many problems modern warfare poses to medicine. However, if the reader expects the title of the book to refer to the present conflict exclusively he will be somewhat disappointed. The desire to make the audience understand the matter under discussion (the book anticipates lay readers) often shifts the emphasis to outlines of physiologic, pharmacologic and pathologic theories. Moreover, in a good many cases such facts and documentation as are given relate to experiences of the last war and the prewar period. The connection with the present war thus tends to be loose and, as a whole, the book has a decidedly academic character. There is, on the other hand, a wise restriction to relatively few but illustrative examples. The chapter on neurologic and psychologic effects of cerebral injuries, which is mainly devoted to the consequences of lesions of the frontal lobes, may be cited as an instance of lucid presentation.

The book has an advantage over similar popular publications in avoiding exaggeration and overdramatization. The calm and dignified tone that was to be expected from the distinguished contributors does not allow the reader to forget that war is an evil, however necessary it may be and however great a stimulus to medical progress.

Mitosis: The Movements of Chromosomes in Cell Division. By Franz Schrader, Professor of Zoology, Columbia University, New York. Cloth. Price, $2. Pp. 110, with 15 illustrations. New York: Columbia University Press, 1944.

This monograph reviews critically the work on the mechanisms of cell division. The distribution of chromosomes to new cells is a complicated but well ordered process, a thorough understanding of which is essential to advance in the study of problems of cell behavior. A number of hypotheses have been advanced to explain the movements of chromosomes, but to the author no final solution is in sight. The trouble seems to be "that nearly all the hypotheses have been built around the idea that a certain, single type of force underlies all mitotic activity." It now seems clear that "mitosis is comprised of a great complex of different mechanisms." The review ends constructively in the recommendation that at present research better be concentrated on single, limited phases of mitosis in favorable species rather than directed to the immediate complete analysis of the whole mitotic cycle.

Absence from Work: Prevention of Fatigue. Conditions for Industrial Health and Efficiency, Pamphlet No. 2. Issued by the Industrial Health Research Board of the Medical Research Council. Paper. Price, 3d. Pp. 20, with 4 illustrations. London: His Majesty's Stationery Office, 1944.

This pamphlet is the second in a series issued by the Industrial Health Research Board of the Medical Research Council intended to improve and safeguard industrial health and efficiency. It states at the outset that industrial productivity is dependent on the health, efficiency and enthusiasm of the workers. The factors leading to absence from work as they relate to conditions inside the factory, outside influences and the status of the workers' minds and bodies are all succinctly listed. In this last connection, certain measures calculated to relieve boredom and indifference are described, such as rest periods, judicious use of music, the introduction of competition and a definite knowledge of what the process means to the finished product. Individual workers, joint productive committees and works councils all must contribute to improve attitude, work environment and interest in healthful living. The effect of fatigue on productivity expresses itself in lowered output, lowered quality of work, more accidents and behavior of workers. Causes of fatigue are the length and intensity of the work period, working conditions, lack of suitable incentive and improper rest and relaxation away from the plant. Each suggests a remedy, and the remedies are sensibly presented.

Psychiatry for Nurses. By Louis J. Karnosh, B.S., Sc.D., M.D., Associate Clinical Professor of Nervous Diseases, School of Medicine, Western Reserve University, Cleveland, and Edith B. Gage, R.N. In collaboration with Dorothy Mereness, A.B., M.N., R.N., Instructor of Psychiatric Nursing, Neuropsychiatric Division, City Hospital, Cleveland. Second edition. Cloth. Price, $2.75. Pp. 339, with 38 illustrations. St. Louis: C. V. Mosby Company, 1944.

This is one of the most practical textbooks on psychiatry for nurses. Here is a book that is written clearly and simply. The authors fully realize that their subject must be presented concisely and with utmost simplicity because of the many other subjects the nurse must take during the course of her training. With this point of view the reviewer heartily agrees. After each of the twenty-nine chapters there is a list of questions which can be used to good advantage. There is also a bibliography. This book is highly recommended to all nurses, both undergraduate and graduate, and also to general practitioners of medicine.

A Manual of Physical Therapy. By Richard Kovács, M.D., Professor of Physical Therapy, New York Polyclinic Medical School and Hospital, New York. Third edition of "Physical Therapy for Nurses." Cloth. Price, $3.25. Pp. 309, with 118 illustrations. Philadelphia: Lea & Febiger, 1944.

This is the third revised edition of a book formerly published under the title "Physical Therapy for Nurses." It is divided into six parts: Part I is an introduction dealing with physical forces and the history of physical therapy, part II deals with heat and light, part III with electricity, part IV with hydrotherapy, part V with massage and exercise and part VI with applied physical therapy. The sections on heat and light and on electrotherapy have been considerably revised, and new illustrations have been added in this edition. The section dealing with massage and exercise has been amplified, and a new final chapter on "Physical Therapy in War" is a timely addition. This textbook should continue to serve as a valuable manual for teaching physical therapy to nurses, and it can also be considered a useful volume for the physician who is unfamiliar with physical medicine and who desires a rapid survey of the elementary aspects of the field. The revisions which have been made are distinctly worth while. Kovács's facile pen has made another valuable contribution to the broad field of physical medicine.

The Psychology of Women: A Psychoanalytic Interpretation. By Helene Deutsch, M.D., Associate Psychiatrist, Massachusetts General Hospital, Boston. Foreword by Stanley Cobb, M.D., Bullard Professor of Neuropathology, Harvard University, Boston. Volume I. Cloth. Price, $4.50. Pp. 399. New York: Grune & Stratton, Inc., 1944.

Those who are familiar with the writings of Helene Deutsch have come to expect from her publications sound, carefully studied and clinically illustrated scientific observations. The present volume lives up to such expectations in every particular. The author states in the preface that "the purpose of this book is to explain the normal conflicts. We know that the degree of psychic health is not determined by the absence of conflicts but by the adequacy of the methods used to solve and master them." Exhaustive case material is presented to illustrate the validity of conclusions reached from psychoanalytic investigation into problems of feminine development. In the present work, which is the first of two volumes, the author discusses the individual development and personality of women. This volume contains ten chapters, on prepuberty, early puberty, puberty and adolescence, menstruation, eroticism, the feminine woman, feminine passivity, feminine masochism, the "active" woman, the masculinity complex, homosexuality and the influence of the environment. The bibliography and the index are excellent. This book not only will interest the psychiatrist, the psychologist, the physician and the student but may be read with understanding and profit by mothers and young women who hope to be mothers.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

REFRACTORY EDEMA OF LEGS

To the Editor:—A patient complains of swelling and pain in the legs, dyspnea and thirst at night. She has had these complaints for about six months. The history is essentially normal. The patient is a woman aged 60 weighing 190 pounds (86 Kg.). The heart sounds are poor; no murmur is audible. The blood pressure is 140/78, the pulse rate 90. The lungs are clear, and the abdomen is normal. The legs show a number of large varicose veins and are edematous. There are on each leg a number of bright red areas varying in size from 0.5 cm. to 1 inch. They are tender, superficial and, on palpation, feel like thrombotic veins. These areas are found between the knees and the ankles. The blood sugar is 104 mg.; urine, blood and electrocardiogram are normal. Digitalization has not improved the legs, although it has helped the dyspnea and reduced the pulse rate to 78. Mercupurin, foreign protein therapy and aminophylline have also been tried. What additional therapeutic measures may be suggested?

M.D., Pennsylvania.

ANSWER.—The stubbornness and resistance to treatment in this case at once suggest Quincke's disease, or angioneurotic edema. This condition is characterized by such swelling as is described together with the itching. It is assumed in this diagnosis that the red areas are in the nature of urticarial wheals. If these areas come and go rapidly they are almost sure to be allergic in origin. The dyspnea and thirst may represent swelling about the throat and palate. Has such swelling been observed in this case? The treatment of this disease is quite unsatisfactory. An allergen must be sought, and the usual measures that are employed against allergic disorders are used, but much is left to be desired.

Other circulatory disturbance in the lower part of the legs must be considered. Circulatory disturbance in the lower part of the legs will not explain dyspnea, but the improvement of the dyspnea under digitalis administration suggests the presence of an associated deficiency of the coronary circulation. Dyspnea due to congestive heart failure is not likely with clear lungs. The presence of varicose veins, swelling and pain suggests acute thrombophlebitis. If the red and tender areas are really thrombosed veins, support is given to this diagnosis. At any rate, if the red and tender areas are inflammatory and not allergic they should be treated by rest and elevation of the legs. The use of a sulfonamide might hasten the control of the active infection. The addition of ammonium chloride to the therapeutic measures already used might be helpful. After the subsidence of the acute inflammatory process the circulation should be restored as far as possible.

SYPHILITIC RELAPSE OR REINFECTION

To the Editor:—A diagnosis of primary syphilis was made on a Negro soldier, aged 18, by means of a positive darkfield examination of penile ulcer. Blood serologic tests were negative at this time. Treatment was begun immediately and followed the routine mapharsen injections twice weekly for ten weeks, with bismuth weekly the first five weeks. The chancre healed rapidly and completely. Treatment was started on Jan. 12, 1944. Because the patient neglected to take his treatment promptly on every occasion, the number of mapharsen injections was increased to twenty-five and completed April 24. Three days later the first of a series of six weekly bismuth injections was begun. The next day the patient noticed a lesion on his penis in a different location from the original one. Darkfield examination revealed the lesion to be teeming with spirochetes. Would you kindly interpret this case for me and suggest a course of treatment.

Lieutenant, M. C., A. U. S.

ANSWER.—In this case the question of differential diagnosis between reinfection and monorelapse would have to be considered. Ordinarily, with a monorecidive the process returns on the site of the old primary lesion. That is not necessary, however. Nothing is said as to the condition of the draining lymph nodes and whether the same chain of nodes is involved in the second infection that was involved in the first.

As the patient in question was irregular in his treatment, the chances are that he has a relapse type of syphilis. In an early relapse like this, one would find spirochetes locally just as with a chancre.

A condition like this should be treated as acute syphilis. There should be no difficulty in getting treatment with penicillin, hospitalization and intramuscular injections in the buttocks as is recommended for this disease when penicillin is employed.

INTERMITTENT BURNING OF PALATE

To the Editor:—A woman aged 32, the mother of 2 children, for the past four years has complained of an intermittent burning in the hard palate. At times she insists that small blisters and cracks appear, but I have never been able to identify them. Diet is adequate, and careful blood study has not revealed any abnormalities; there has been no response to treatment with adequate amounts of vitamin B complex and multivitamin preparations. The burning is bilateral and involves the anterior portion of the palate. The complaint began following a cervical amputation for severe erosion and laceration. Preceding the operation the patient complained of numbness and tingling in the fingers, which cleared up following the operative procedure. The patient otherwise is neurotic and of poor emotional control, with frequent outbursts against children and husband. When situations arise which provoke emotional response on her part, the burning in the mouth becomes worse. However, she refuses to accept the idea of psychogenicity or permit psychotherapy. The burning is somewhat relieved by application of topical anesthesia. An oral surgeon has advocated alcohol injection of the palatine nerves. Although it is probable that this patient's complaint is largely hysterical in nature, in view of the relief with topical anesthesia and rejection of a more fundamental approach via psychotherapy do you think alcohol injection may prove beneficial? Are any harmful sequelae likely to ensue? Any other suggestions will be welcomed.

M.D., New York.

ANSWER.—Does the patient have any trigger zones in the tonsillar regions? Has she free acid in her stomach contents? From the description the patient is not afflicted with a neuralgia but with a neurosis. It is doubtful that an injection of alcohol into the foramen rotundum or in the gasserian ganglion would have an anesthetizing effect. Although the palatine nerves are branches of the maxillary division of the trigeminal nerves, they are supposed to be related to the 7th and 9th cranial nerves. In this case it is bilateral and both sides would have to be injected. Harmful sequelae are not likely to ensue. Sight must not be lost of the fact that if this patient is neurotic and does get a permanent anesthesia she may be quite disturbed about the numbness. The topical applications might be continued. If the burning becomes uncontrollable, one side may be injected. Before it is done, however, the patient should be fully acquainted with the fact that her palate may become numb.

PHOTOELECTRIC COLORIMETERS

To the Editor:—What is the present status of photoelectric colorimeters? Which is the best make at the present time for general laboratory use?

M.D., Ohio.

ANSWER.—The amount of a substance in solution is measured in a visual type of colorimeter by matching the brightness of two adjacent fields. The accuracy of the determination depends on the sensitivity of the eye as well as other factors, such as fatigue and after-images and individual variation. It is often difficult to check readings satisfactorily, especially with different observers. In a photoelectric colorimeter most of these sources of error are eliminated. Here the concentration of a substance in solution is measured by the amount of deflection of the pointer of a sensitive electric meter. If the instrument meets certain requirements (see Bureau of Standards Letter Circular LC-473), readings are rapid and accurate. All good photoelectric colorimeters provide also for the use of color filters. These add to the usefulness of the instrument by limiting the transmitted light to a relatively narrow spectral region in which there is the greatest change in transmission with a change in concentration of the substance to be determined. Photoelectric colorimeters are rapidly replacing the visual type in most laboratories. The main problem is expense, but accurate and well constructed instruments are now available at moderate prices. The Klett-Summerson and the Cenco instruments are both satisfactory and can be highly recommended for routine clinical laboratory use.

TRAUMATIC FRACTURE WITH INTACT PERIOSTEUM

To the Editor:—Is it possible to have a fracture due to external trauma without loss of continuity of the periosteum?

Lieutenant, M. C., A. U. S.

ANSWER.—It is possible to have a fracture due to external violence without loss of continuity of the periosteum. This membrane in youths, adolescents or young adults is highly vascularized, pliable and elastic. The bone beneath, therefore, may be fractured across or in a spiral from external twisting violence, permitting the periosteum to escape tear. This does not often happen. There may be only small tears in many cases. When the periosteum remains intact a hematoma forming between it and the underlying cortex is confined and after organization forms the basis for late developing callus formation. This mechanism is illustrated in so-called march fractures or "pied forcé," in which at first the fracture plane does not appear in the roentgenogram but comes out three to six weeks later with callus formed beneath the raised periosteum.